THE

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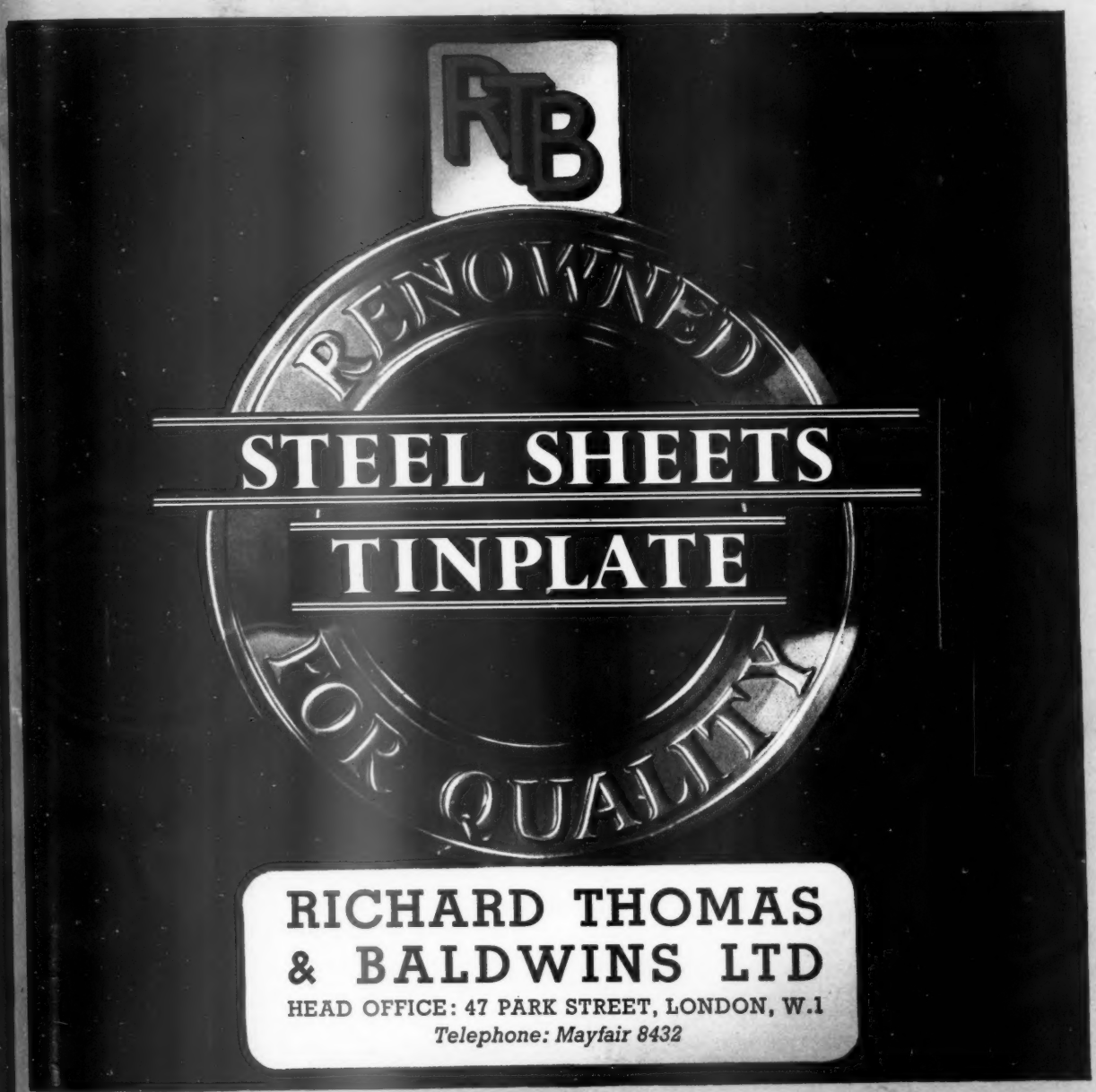

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A Journal of Management, Engineering and Operation
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Railway Engineer · TRANSPORT · The Railway News
The Railway Times · Herapath's Railway Journal · RAILWAY RECORD.
RAILWAYS ILLUSTRATED · ESTABLISHED 1835 · Railway Official Gazette

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Telephone : WHitehall 9233 (12 lines) *Telegrams : "Trazette Parl, London"*
BRANCH OFFICES
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LEEDS: 70, Albion Street . . . . . *Leeds 27174*
BRISTOL: 8, Upper Berkeley Place, Clifton . . . . *Bristol 21930*
Annually £4 10s. by post. Single copies, Two shillings.
Registered at the G.P.O. as a newspaper. Entered as second-class matter in U.S.A.

Editor : B. W. C. Cooke, Assoc. Inst. T.

Vol. 107] FRIDAY, SEPTEMBER 6, 1957 [No. 10

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Trades Union Congress

THE most important event of the first day of the Trades Union Congress at Blackpool from the railway point of view was the discussion on trade union amalgamation. Mr. J. Campbell, General Secretary of the National Union of Railwaymen, is in favour of reducing the present 184 trade unions affiliated to the T.U.C. to 30, and there is little doubt that he would like to see the Associated Society of Locomotive Engineers & Firemen and the Transport Salaried Staffs' Association merged into the N.U.R. The motion, a composite one, suggesting that much could be done to improve trade union structure and instructing the General Council to make a survey and recommendations, to be reported to the 1958 Congress, aroused considerable feeling, and Mr. A. Hallworth, General Secretary of the A.S.L.E.F., and Mr. W. J. P. Webber, General Secretary of the T.S.S.A., spoke strongly against its coming before Congress. In the event, it was considered in private session. It was opposed for the General Council by Sir Vincent Tewson, General Secretary, who was supported by Messrs. W. J. P. Webber and A. Hallworth, both of whom are members of the General Council. The motion was defeated by a substantial majority. This attempt to amalgamate trade unions, and its result, are of particular interest at the present time, when the T.S.S.A. has asked the British Transport Commission to review wages and the N.U.R. is considering a claim of its own. There is every likelihood that the A.S.L.E.F. also will lodge a wage claim in the near future, but it is possible that both the N.U.R. and A.S.L.E.F. will wait until the Commission has made a move in respect of the T.S.S.A. request. In his Presidential address to Congress, Sir Thomas Williamson stated his belief that Britain would probably lose more than she would gain by being cut out completely from the proposed European Common Market, but urged that full employment should be "clearly written into any European agreement that emerges." He also condemned those trade unionists who joined unofficial movements to circumvent and overturn the official constitutions of their organisations—no doubt a reference to the loose trade union discipline which has shown itself plainly in recent months.

Important British Railways Contracts

THE announcement that the British Transport Commission has let a contract for the erection of some 200 single track miles of overhead line equipment for Stage 1 of the Glasgow suburban electrification scheme, to be carried out on the 50-cycle system, marks an important step in the progress of this scheme. The contractor is Pirelli-General Cable Works Limited and work on the site is expected to start early in the new year. This stage comprises the lines from Airdrie to Helensburgh and Balloch, and from Glasgow Central to Kirkhill and Neilston High, including the Cathcart Circle. The lines from Motherwell to Kirkhill and Crossmyloof to Clarkston are also to be included. These are actually part of Stage 2 but are required for feeding Stage 1. Orders have been placed also for 600 20-ton bulk-cement wagons which, with 400 already on order, will bring the British Railways fleet of cement wagons suitable for pressure-discharge up to some 1,200. These have been ordered from the Central Wagon Co. Ltd., the Gloucester Railway Carriage & Wagon Co. Ltd., and the Butterley Co. Ltd. An experiment is to be made in the use of light alloy 5-ton containers, and 50 have been ordered from Park Royal Vehicles Limited. Details of these contracts are given on page 289.

Loan for South African Railways

THE South African Railways are expanding at a very considerable rate and some £60,000,000 will be needed in the next five years to finance railway and harbour development. The South African Minister of Finance, Mr. J. F. T. Naudé, who is visiting several European countries before going on to the U.S.A., stated in London last week that the Union is seeking a loan of £10,000,000 which would be used mainly for railway improvements. Investment by the United Kingdom in South Africa, though still substantial, has fallen off in recent years, and Mr. Naudé has no plans to raise the required loan in this country, or indeed in Europe, but is hoping that the World Bank and the New York market will be able to provide the loan. It may be that the recent purchase of diesel-electric locomotives by South Africa from the U.S.A. will encourage the market, which will no doubt look ahead to further purchases, but the large numbers of electric locomotives ordered from builders in Britain in recent weeks suggest that South Africa will not be bound by considerations of reciprocity. Trials with the diesel-hydraulic locomotives on order from Germany may lead the administration to opt for this type of locomotive, for which United Kingdom builders are well able to tender.

International Railway Congress in Madrid

THE seventeenth plenary session of the International Railway Congress Association is to be held in Madrid next year towards the end of September; precise dates have not yet been determined. The Spanish National Railways (R.E.N.F.E.) will be the host administration. The

marked success of the Sixteenth Congress, held in London in 1954, was due very largely to the efforts of the British Transport Commission and British Railways. The arrangements so far announced for 1958 are much the same as for the London session, except that the number of questions for discussion has been further reduced, from 11 to 10—two for each of the five sections; the U.S.S.R. railways are expected to contribute answers on the 10 questions—all of which are of the utmost current interest to railways all over the world. Reporters co-ordinating the replies from what may be termed, very roughly, the group of railways in English-speaking countries or following British practice, include five from the British Commonwealth: Messrs. K. J. Cook, Chief Mechanical & Electrical Engineer, British Railways, Eastern Region; G. F. Fiennes, Traffic Manager (Great Northern), Eastern Region; F. Jackson, Assistant Chief Civil Engineer, South African Railways; N. C. Vogan, Chief Civil Engineer, New South Wales Government Railways; and S. L. Kumar, Director, Research, Indian Railway Board.

Accident in Jamaica

THE accident in Jamaica last Monday must rank as one of the worst in railway history. Preliminary reports put the number of passengers killed at 205 and the injured at more than 400. The 12-coach train, hauled by two diesel-electric locomotives, was returning to Kingston with 1,500 excursionists on board when it became derailed on a sharp curve near Kendal, some 65 miles from Kingston on the line to Montego Bay. The locomotives and the first two coaches remained on the track, although the second coach was damaged. The third coach broke away but stayed on the track, reduced to a flat platform with the entire superstructure torn away. Five coaches fell into a gully and two were wedged in a narrow cutting. Many of the injured were standing packed on the open platforms at the ends of the coaches. It would be improper to comment on the cause of the accident before the full facts are known, but it is no secret that the rolling stock is old and overworked—some even has wooden underframes. There are also, on the stretch of line where the accident occurred, long series of continuous reverse curves of as little as 300-ft. radius. The gauge is 4 ft. 8½ in. The Jamaica Government Railway is repairing and renewing its assets as fast as possible, but much remains to be done.

Linking Indian Metre-Gauge Systems

THE opening to traffic of the first section of the Khandwa-Hingoli link of the Central Railway of India, referred to on another page, shows the progress being made on this important project—the linking of the two detached, northern and southern, metre-gauge systems in the Republic of India to form one system with a route mileage of over 15,000, roughly equal to the route mileage of 5 ft. 6 in. gauge. The northern metre-gauge system connects physically with some 1,100 route miles of metre gauge in Eastern Pakistan, with which country through traffic is now stated to be reviving. The benefits of uniting the northern and southern systems include not only freer distribution and movement of rolling stock and motive power—the Khandwa-Hingoli link showed itself to be badly needed during the last war—but a metre-gauge trunk line to supplement the present broad-gauge north-to-south routes, which tend to be congested. The new line will play an increasingly important part as industrialisation proceeds under the Second Five-Year Plan. Increased output from factories will require much additional rail transport; India's roads are comparatively undeveloped, and the country is not well adapted by nature for coastal shipping.

Tax on Road Hauliers in Victoria

A RECENT decision of the Australian High Court, upholding the validity of an Act passed in the state of Victoria to permit the Government to impose a road tax on interstate hauliers, is of great interest to railwaymen everywhere. It has long been contended that road hauliers do not pay in taxes an amount commensurate with the wear and tear caused to road surfaces by their heavy vehicles. Thus, the argument runs, road haulage operators are subsidised, whereas railways must provide and maintain their own tracks. The Act was passed in December, 1955. It imposed a tax of ¼d. a ton-mile on the unladen weight of a lorry weighing more than four tons, and a similar amount on 40 per cent of the vehicle capacity, and was intended to provide compensation for the extensive damage being caused to Australia's main roads. The hauliers have refused to pay the tax—now amounting to nearly £A500,000—pending the result of the appeal to the High Court. Other states are now likely to impose similar taxes, and the result may well be to drive additional traffic to the railways, especially when standard-gauge links between all the capitals become available. Coastal shipping, however, competes strongly with the railways, more especially as most industrial centres are also seaports, and distances by sea compare not unfavourably with those by rail.

C.N.R. and Personnel Appraisal

MANAGEMENT has long been aware of the ratio between a fully co-operative staff and its productivity index. Today, full employment brings this relationship into sharp focus since workers are now able, as possibly never before, to emphasise dissatisfaction by that most concrete of all methods—change of employment. While this state of affairs undoubtedly generates many an administrative headache, unsuspected benefits may accrue from the wise acceptance of the inevitable. Do employees want some say in the way they are employed? Then let them present their ideas and let a record be made of their suggestions—their practical knowledge of the business equips them with special qualifications to suggest what may well be more workable methods than those at present used. True, some long-cherished and highly-valued ideas of managerial omnipotence may have to be relinquished. But this may not ultimately prove so serious a loss as at first envisaged. The article in this week's issue on a system of personnel appraisement of staff devised and applied by Canadian National Railways describes a method designed to make the best use of each of its employees up to and including the highest administrative grades below that of President of the system. A study of this article and of the type of forms used in appraisal, details of which are reproduced, shows that the Canadian system lays great store on staff reactions and criticisms. Excellent results are claimed from application of the scheme, and it seems only sensible to give close consideration to any project where such a claim is made.

Soil Mechanics and Foundation Engineering

THE activities of the Fourth Conference of the International Society of Soil Mechanics & Foundation Engineering, held last month at the Institution of Civil Engineers, London, are of interest to railway civil engineers in Britain and overseas; and railway engineers played an important part at the gathering. Although the society was founded at Harvard University in 1936 and had its headquarters at the Massachusetts Institute of Technology until 1953, the headquarters was then transferred to the Institution of Civil Engineers in London. The 1957 Conference was opened by Sir Arthur Whitaker, President of the Institution of Civil Engineers, and 176 papers from 30 different countries were presented. Briefly, these papers were grouped as follow: Soil properties and their measurement: techniques of field measurement and sampling: foundations of structures—general and other than piled: piled foundations; roads, runways, and rail tracks; earth pressures on structures and tunnels: and earth dams, slopes, and open excavations. A variety of models and apparatus connected with the subject were exhibited, two of them of special railway interest.

Railway Exhibits

THE British Transport Commission, represented by Mr. M. G. R. Smith, Chief Civil Engineer, British Railways, Western Region, was responsible for eight exhibits at this conference. They included apparatus for measuring automatically the water pressure in the pores of a soil sample under triaxial compression, described in our issue of January 11; a machine for automatically recording in the form of a graph the results of soil consolidation tests; the plant in standard use in the Western Region for grouting clay slopes with an aerated sand-cement grout, and the apparatus for the direct location of slip planes with plastic tubes, referred to in our March 29 issue. A London Transport exhibit was a panel illustrating the earth movement affecting a deep cutting near Uxbridge on the London Transport system, and involving a high retaining wall, which moved forward about 1½ ft.; emergency measures included the strutting of the toe of the wall, excavation of the clay behind it and the regrading of the tracks giving a maximum lift of 4 ft. 6 in., thus restoring stability. The Chief Civil Engineers of the Southern and Scottish Regions also provided exhibits.

First Route-Setting Signalbox Replaced

THE recent bringing into service of the new No. 1 all-relay signalbox at Bordeaux-St. Jean, of similar type to that at Marseilles, illustrated in our issue for June 28, 1957, has replaced the first route-setting signalbox ever constructed, opened on January 14, 1903, to the designs of G. Bleynie, of the then Midi Railway, and P. Ducousso. These boxes had been elaborated in 1901 and formally approved by the authorities in November of that year. An ordinary 30-lever power frame was used, containing 26 working route-levers and a number of small signal selection switches, with which 41 separate routes, involving 22 sets of points and the same number of signals ,all worked by electric motors, could be set and signalled. The track diagram reproduced, by movable shutter mechanisms, the condition of the points and signals but did not indicate track occupancy, although some of the points had a short local locking track circuit. Other signalboxes of this pattern were built—some in Spain—while varying designs of accomplishing the same object appeared in due course and became widely adopted in France, where the route-setting principle early became firmly established.

Value for Money

THE reception by the Press and public of the announcements by the British Transport Commission and by London Transport that certain fares and passenger charges are to be raised from September 15 has been on the whole not as unfavourable as might have been expected. The public had been well prepared by previous statements that these increases were impending, and the absence—so far—of anything more than an attitude of resignation points to efficiency on the part of the public relations officers of the Commission and London Transport. From the particulars given elsewhere in this issue, it is clear that the increases are both moderate in themselves and that they compare well with the corresponding rises since before the war of 1939-45. The increase in the second class ordinary fare of British Railways from 1·88d. to 2d. a mile will make comparatively little difference to most passengers in a country of short distances; nevertheless it was wise to postpone the increases until the end of the peak of the summer holiday season.

Even although the necessity for increasing passenger charges may be accepted by a considerable section of the travelling public—though there will be grumbles when travellers are faced with the necessity to disburse more cash, more particularly for season tickets, when the time comes in a week or so, the fact remains that British Railways will lose popularity, unless some very active steps are taken to improve the commodity—passenger travel—which is going up in price. The matter is one of great urgency, in view of the growth and development of private motoring and other forms of transport.

Timetable improvements are being taken in hand vigorously by more than one Region. They seem in some cases to be the result, at least in part, of increased Regional autonomy. The form they are taking and, in our opinion, ought to take is and has been the subject of a good deal of editorial comment, as for instance on another page this week. It is to be hoped that imagination will be exercised in achieving more 60-m.p.h. runs—a useful selling point for long-distance travel—and in ensuring easy access to smaller places where industry has started to develop. An important point is that improvements should be effected soon. There is a tendency, and an understandable one, in view of the labour involved in recasting a timetable, to paint an attractive picture—and probably quite a true one—of the excellent train service that will be in operation when electrification of some sections of line is completed, or when diesel locomotives or railcars are available. Public relations officers have not made this mistake, but a good many railwaymen have done so, in good faith, when answering criticisms by members of the public. The fact is that better train services are needed *now*; and because it will be a considerable time before electrification now in progress on some main lines is completed, and before diesel motive power will be available for more than a few main-line expresses, the bulk of the improved running on main lines—diesel multiple-unit sets are being delivered at a very satisfactory rate for secondary and branch line working—will have to be with steam haulage.

Apart from statutory obligations, the public looks to the railway—sometimes as a last resort, when other modes of transport are for some reason not available—to carry it from almost anywhere to any destination, and very often without prior notice. This may be unreasonable, but it is a fact of commercial importance. Neither motorcoach nor aircraft can provide transport on anything like the same scale of availability. There is also the fact that the train can serve the locality which is too small to have its own airport and remote from a major one, whilst the motorcoach cannot compete in speed. To serve such smaller places probably demands an increased number of stops by expresses. Therefore, so as not to reduce the speed of travel between the major centres on the same line—as long as steam is the motive power—more expresses must be run.

The season ticket-holder in Britain is, in general, well provided for in the matter of trains. The railway officers concerned spend a great deal of thought on improvements in the frequency, speed, and punctuality of business trains, and on efforts to ensure that all stations are reasonably well served. Services to and from holiday resorts are bedevilled by the weekend peaks caused by Saturday-to-Saturday letting of hotel accommodation and lodgings—though indications are reported from some industrial areas that mid-week travel—encouraged, no doubt, by mid-week tickets—is increasing. The feature of holiday trains that loses a great deal of goodwill is unpunctuality caused largely by weekend congestion. Judging by accounts this summer, we believe that, in a praiseworthy attempt to move all passengers without overcrowding, too many trains have been run on some lines. The same considerations apply to the running of excursion trains. No doubt the increasing use of diesel and electric multiple-unit trains for excursion traffic will help to solve this problem. The main-line express, with the highest net revenue per seat, serves the public as no other mode of transport can serve it for the majority of journeys in this country, and with the vagaries of the British climate, is the form of passenger train most deserving of study.

The question of punctuality has been discussed in a number of issues. Improvements must be made very quickly, if public goodwill is to be retained. Apparently vigorous steps are being taken by the Regions. At all events, mid-week running seems to have been achieving a reasonable standard recently. The public will not accept electrification or civil engineering work as excuses for lateness of its trains.

As to the many details, attention to which improves the quality of what is offered to the passenger, the main one is perhaps the printed passenger timetable. A great deal could be said about British railway timetables. Here we observe that they tend to be—to the passenger—obscure, pedantic (because of the excess of footnotes), lacking in clear information as to matters such as refreshment cars and through coaches, and unco-ordinated as to through services between Regions. No doubt this is because in the past they have received insufficient attention from commercial officers. Some improvement may be expected as the result of the reorganisations in several Regions, where operating and commercial responsibilities are now borne by one officer.

Other matters which might well receive more attention than they appear to do are carriage destination boards, train announcements, both written and broadcast, at stations, explanations of delays to the public, and the plethora of names given to expresses—or even semi-fast trains—which complicates stock working and can achieve no apparent commercial purpose.

Winter Train Services, Western Region

WITH the near completion of the repairs to Souldern viaduct, which for some months required single-track working, and the advanced state of Banbury station reconstruction, it has now been found possible to improve some of the timings between Paddington, Birmingham, and beyond. Two 2-hr. schedules are reinstated between Paddington and Birmingham, the 9 a.m. down "Inter-City" and the 4 p.m. up "Cambrian Coast Express," both accelerated 7 min. The 11.10 a.m. down is speeded up by 5 min. to 122 min., the 9 a.m. up by the same amount to 125 min., the 8 a.m. up by 7 min. to 130 min., and the 5.10 p.m. down by 5 min. to 138 min.

Compared with the uniformly excellent general standard of speed on such other Western Region main lines as those between Paddington and Bristol and Paddington and Plymouth, it is difficult to explain the wide variation in the running times of the trains between Paddington and Birmingham, from such extremes as 120, 122, and 123 min. with one intermediate stop (the 9.0, 11.10 and 10.10 a.m. down respectively) to 151 min. with two stops by the 8.10 p.m. down, a new train in the last timetable to which it might particularly have been desired to attract patronage by some reasonably fast running. The same remarkable disparity may be seen on the South Wales main line, over which the down "South Wales Pullman," leaving Paddington at its new departure time of 8.50 a.m., requires 151 min. to cover the 133·4 miles to Newport non-stop as compared with the 131 min. of the 10.55 a.m. "Pembroke Coast Express."

The Pullman is a moderately weighted train of about 320 tare tons, and in view of being an extra fare train might reasonably be expected to have the fastest time on the service; if this were so, it might afford considerably more relief to the heavy 8.55 a.m. down South Wales train than it has done up to the present time. The 7.55 a.m. from Paddington, a new service from Paddington to Swindon, Newport, Cardiff, Swansea and Milford Haven, introduced for the first time in the summer timetable, is continued for the winter, but here again the somewhat lethargic timing of 3 hr. 13 min. to Cardiff and 4¼ hr. to Swansea militates against the attraction of what might otherwise be a most useful new service. This train is allowed 42 min. more from Paddington to Newport, with two intermediate stops, than the non-stop 10.55 a.m., although the two-stop 5.55 p.m. "Red Dragon" is no faster. A general levelling up in speed on the South Wales service might be of considerable public advantage.

On the Bristol main line the 3.5 a.m. from Paddington, a 130-min. train calling only at Swindon, and the 6.10 p.m. from Bristol, a 125-min. train calling only at Bath, both of which were put on experimentally during the summer, have become sufficiently patronised to warrant continuance for the winter; the latter is the fastest train of the day from Bath, allowed only 106 min. for the 106·9 miles to Paddington (60·5 m.p.h.). On Sunday evenings there is a new train from Weston-super-Mare at 7.15 p.m. to Paddington, calling at all principal stations and arriving at 10.55 p.m. To the West of England the summer 11.30 a.m. from Paddington to Penzance, and the 9.30 a.m. from Falmouth to Paddington (relieving the up "Cornish Riviera" and non-stop from Plymouth) are continued until October 12 and will resume running on May 12, for the benefit of late and early holidaymakers in the West Country.

As to cross-country services, the new 7.50 a.m. buffet car train from Birkenhead to Shrewsbury, Hereford, Newport and Cardiff, arriving at 12.22 p.m., and the balancing 4.15 p.m. from Cardiff to Birkenhead, due at 8.42 p.m., which also were introduced experimentally during the summer, have proved their value and are being continued for the winter. So also in full is the new diesel buffet car service between Birmingham, Cheltenham, Gloucester, Newport and Cardiff, four times in each direction daily with two workings prolonged to Swansea and one to Carmarthen. The 8.25 a.m. from Birmingham and the 8.5 a.m. from Swansea are to stop at Stratford-on-Avon, as (with one exception each way) all the other diesel trains do. We are pleased to note that, like the Southern Region timetables, those of the Western Region now draw a distinction between buffet cars and those with full restaurant service.

Diesel multiple-unit sets are to take over the local workings over the Eastern and Western Valleys lines in South Wales, between Newport and Blaenavon, Brynmawr and Ebbw Vale. In general, the pattern of service is much the same as previously, with one or two additional trains and some slight accelerations, up to 5 min., on many of the workings between Newport and Blaenavon.

Indian Railways in 1955-56

WE have received from Mr. G. Pande, Chairman of the Indian Railway Board, a copy of the Board's administration report for the year ended March 31, 1956. That year was the last in the Indian Government's First Five Year Plan period, and witnessed still further acceleration in the country's economic development and a general improvement in the national economy. This is reflected in yet another record in the gross earnings of all railways in India, Rs317·5 crores or £238,025,000 (£216,442,500), the figures in brackets here and below being the corresponding ones for the previous year. The volume of freight traffic handled was also the largest on record, namely 115,300,000 tons, of which 92,000,000 tons were revenue-earning, an increase of no less than 8½ per cent over the 1954-55 figure. This marked increase was partly due to specially creditable improvements in operation under certain headings. The corresponding earnings totalled Rs 177·92 crores, or £133,440,000, a sum 13·7 per cent higher than in the previous year. Passenger earnings also increased from Rs 103·74 crores to Rs 108·76 crores, or by 4·84 per cent during the year under review.

Some of the principal operating statistics of all the railways during 1954-55 and 1955-56 were as follows:—

—	1954-55	1955-56	Percentage variation
Passengers originating (millions) ..	1,260·9*	1,297·4	+2·89
Passenger-miles (millions)	38,649·3	39,083·5	+1·12
Passenger earnings (Rs. crores) .	103·74	108·76	+4·84
Average passenger journey (miles) ..	30·7	30·1	−1·95
Freight tons carried (millions) ..	107·0	115·3	+7·76
Net ton-miles (millions)	32,126*	36,458	+13·5
Goods earnings (Rs. crores) ..	156·45	177·92	+13·7
Average miles a ton of goods was carried	300·4	316·2	+5·26

* Revised figures

Turning now to Indian Government Railways, we find that gross traffic receipts totalled Rs 316·29 (286·78) crores, or £237,210,500, and after meeting all charges including depreciation amounting to Rs 45·41 crores, but excluding

interest charges, the net revenue for the year was Rs 50·34 (44·06) crores. Of this sum Rs 36·12 crores were repaid as the statutory dividend at 4 per cent on Government capital invested out of general revenues in the railways apart from strategic lines, leaving a balance of Rs 14·22 crores, of which Rs 7·08 crores were allocated to the Development Fund and Rs 7·14 crores to the Railway Revenue Reserve Fund.

The route-mileages of Government and non-Government Railways were 34,182 and 553 respectively, or 34,735 in all. During the year the aggregate route-mileage of new lines opened for traffic was 132·18, and a further 581·73 miles were under construction, including the 187-mile Khandwa-Hingoli link to unite the northern and southern metre-gauge systems in the peninsula. No private lines were acquired by the Government. Perhaps the most important feature of the year under review was the partitioning of the East Indian Railway, the part formerly the Bengal-Nagpur Railway becoming the new South Eastern system on August 1, 1955, with headquarters in Calcutta. Passenger train-miles increased during the year from 113,649,000 to 115,630,000, and goods train-miles from 77,116,000 to 82,573,000.

Of 669 new locomotives placed in service during 1955-56, 437 were of 5 ft. 6 in. (broad) gauge, 221 of metre, and 10 of narrow gauge. Meanwhile, 449 broad-, 744 metre-, and 48 narrow-gauge coaches were placed in traffic. One hundred and sixty-six of the broad-gauge coaches were built by Hindustan Aircraft Limited and the remainder as well as the coaches of the other gauges were turned out of railway shops. In addition, 12 metre-gauge railcars and eight multiple-unit electric coaches were received from Italy, and 10,540 broad- and 9,632 metre gauge wagons went into traffic: roughly half were received from abroad.

During 1955-56 large orders were also placed for locomotives and rolling stock. Though the great bulk of the locomotives were steam, 15 broad-gauge were electric, 12 from the United Kingdom and 3 from Japan. Moreover, 326 broad-gauge electric multiple-unit coaches were ordered, 222 from foreign firms and 104 from Indian shops. In addition, 180 broad-gauge and 250 metre-gauge coaches were ordered in India for steam-worked services. Orders were also placed for no fewer than 35,568 new wagons, 20,722 for broad and 14,846 for metre gauge. The table below shows the distribution of the orders placed for steam locomotives.

Builders	Broad gauge	Metre gauge	Narrow gauge
Chittaranjan Locomotive Works	450		
Tata Locomotive & Engineering Co. Ltd. ..		170	
West German		150	
Japanese		148	6
Czechoslovakian		50	
Austrian		50	
Hungarian		40	
Totals	450	608	6

The monthly out-turn of locomotives from Chittaranjan shops had reached 12 by December, 1955.

The Railway Board's Research Organisation activities included tests to ascertain track stresses, fatigue strength of fishplates and of welded rails, in situ detection of flaws in rails and pre-stressed and other types of concrete sleeper. It is of interest to note that among the latter was an experimental trough sleeper, and in the light of experience gained, the laying of a long stretch of track with it had been recommended. Moreover, a pre-stressed trough type had been tested under static loads and was to be laid in track for service tests. Soil mechanics research, stress analyses of welded triangular purlins, and wind-tunnel experiments to ascertain wind pressures on platform shelters continued. A number of detailed bridge designs was prepared for spans between 20 ft. and 250 ft. in length for both gauges, using rationalised steel sections. Major accidents occurring during 1955-56 formed the subject of a separate editorial in our issue of July 26, 1957.

The Changing Scene in Signalling

WHILE the fundamental problems of efficient railway operation remain essentially the same, new aspects are emphasised by changing circumstances, which usually also result in stimulating the discovery of new means of dealing with them. The very form of the railway, the fixed track and smooth rail with consequent heavy loads, determines the general character of the methods which must be followed if a reasonable level of security against mishap is to be obtained, as was realised long ago. With general application of the principles of the space interval, interlocking, and continuous brakes, given effect to by well adapted equipment worked under rules framed in the light of experience, it proved possible relatively early to move a large volume of traffic with little risk of serious accident. A thought uppermost in the minds of many then was how to reconcile the adoption of indispensable mechanical devices with the probable tendency to place too much reliance on them and become less vigilant, an idea which for some time exerted a noticeable influence on operating practice. Few inventors had much conception of the principles which should guide them in developing apparatus for use on railways and there was an understandable mistrust of electrical devices, which in early days were often defective, while their maintenance necessitated a degree of skill not readily available.

It was realised that considerably more perfect equipment and methods of using it eventually would be forthcoming and, often in the face of many disappointments, much time and money was spent in developing the first practical automatic and power signalling apparatus, thereby opening up a prospect of far reaching changes, the full significance of which probably was not realised at the time. The most fruitful field for the prosecution of such ideas was the U.S.A., where, on most of the lines, automatic signalling offered an exceptionally strong appeal and not merely on technical grounds. In consequence the track circuit, early brought to a fair degree of perfection there, became eagerly resorted to and much attention bestowed on the production of the apparatus necessary to go with it to form a reliable means of enforcing the space interval without having to employ signalmen. Both there and in Europe a beginning was made in substituting power in some form for manual effort in the operation of points and signals in stations, the first steps towards the remote control of the present day.

For some time this process continued to be influenced by the outlook and habits engendered by older methods, but gradually the application of more scientific conceptions and the production of ever more reliable relays, mechanisms and other items such as the day colour-light signal, combined with methods developed in the parallel field of electrical communication, set new tendencies in motion. From these came the practice of route setting and pre-selecting, the use of circuit interlocking, coded forms of sending and receiving controls and indications, available also for the transmission and storage of train descriptions, and other improvements, in which electronic apparatus has now come to play its part.

The old dispersed forms of manual control, involving at times many signal boxes at one station, unavoidable years ago, with consequent great amount of block signalling and exchange of train designating messages, too often wasteful of precious minutes and each a possible source of mistake, can now be replaced by a much more efficient centralised direction of the traffic, providing an intelligent and rapidly effected co-ordination of it over a wide area. In operation in many places this is destined to find extended application in the next few years, not to mention the use of C.T.C., now so much in evidence in some countries, to regulate the whole of the traffic over a length of route to the decisions of a controller or dispatcher. This has amply proved its worth and has entirely altered the character of the working on some overseas lines where comparatively primitive forms were in force previously.

It is likely to be seen also in Europe in many places before long, where economically justifiable, for it is impos-

sible to divorce the economic from the technical aspects of the matter, however attractive it would be to do so. No doubt the ideal would be to convert everything to one general uniform system, or perhaps at least to varying degrees of application of one, were that possible.

On the older railway systems appliances dating back many years are likely to continue in service for a long time to come. Where there has been little or no signalling hitherto or such as there is is at the end of its useful life, there may be a chance to achieve something of the kind if the future is approached in a progressive spirit. Obviously all such equipment requires to be kept in proper order, and sound education and training of both maintenance and operating staff is of the very first importance. It is essential also to have adequate rules for the guidance of train crews who may exceptionally be called on to act in the presence of the failure of a signal or other piece of apparatus, for the human element must always remain in some form and degree, although automatic processes may increasingly displace it in certain directions. Of these there are notable examples in, for instance, the control of traffic at junctions by means of the information stored in the train describers, or by the arrival of the trains themselves at the approach to points of convergence sometimes, as in certain Continental installations, in association with the remote control of several junctions in the area round an important interchange station. Considerable extension of such methods is probable before long, although this may involve a somewhat different approach to the problems of train service planning than has prevailed hitherto.

The U.S.A. Passenger Service Problem

(By a correspondent)

DESPITE every possible advance that has been made by the railways of the United States in their efforts to cut their losses in passenger train operation, figures published recently by the Bureau of Transport Economics & Statistics, Interstate Commerce Commission, show that these losses are continuing on an astronomical scale. The total deficit of passenger working over the year 1956 by all the railways in the Class I category was $696,900,000, the second highest aggregate on record, and this absorbed 39·5 per cent of the net operating revenue from the movement of freight, which totalled $1,765,000,000. One railway only, the Long Island, which has a dense passenger traffic, mainly with season ticket holders to and from New York, but relatively little freight traffic, broke even in its passenger operation; this was possible only because, to assist in its relief from a previously insolvent condition, the railway has been relieved for the time being from a considerable burden of taxation.

The biggest deficits on passenger operation during 1956 were those of the Pennsylvania Railroad ($54,683,000), the Atchison, Topeka & Santa Fe ($52,479,000) and the New York Central System ($48,476,000); the operating ratio in each case was 119, 147 and 119 per cent respectively, and the ratio of these losses to the net freight operating income was 73·8, 63·6 and 70·6 per cent. Some railways with a limited passenger service compared with a very substantial freight service showed a passenger operating ratio of round about 200 per cent; that is to say, the cost of providing the service cost roughly double the receipts from it. The New York, Chicago & St. Louis (the "Nickel Plate"), for example, had a figure of 201·2 per cent, and the Norfolk & Western of no less than 221·3 per cent, while the St. Louis-Southwestern (194·6 per cent), Great Northern (193·9 per cent), Northern Pacific (186·1 per cent) and Denver & Rio Grande Western (182·6 per cent) figures were also very high. But the Norfolk & Western net revenue from freight, chiefly the movement of coal, was so high that the passenger loss represented only 21·5 per cent of the net freight revenue, while the Nickel Plate figure was even lower at 15·9 per cent. On the other four railways mentioned the ratio of passenger loss to freight revenue was 7·4, 44·1, 46·7, and 24·2 per cent.

It was by no means a record for nearly half the profit from freight movement to be swallowed up by passenger traffic losses. On the Chicago & North Western Railway, indeed, the proportion was as much as 95·5 per cent, and the reason for the abandonment by this company of the through services between Chicago and the Pacific coast for so many years jointly operated with the Union Pacific Railroad is thus in part explained. But the Chicago, Milwaukee, St. Paul & Pacific Railroad, which took them over, is not in much better case, with a percentage of 57·4. Lines with the heaviest passenger traffic show the worst figures, such as the New York, New Haven & Hartford, with 85·3 per cent, the Boston & Maine, with 74·2 per cent, and the Central of New Jersey, with 60·7 per cent; the last-named suffers in particular from the extremely heavy taxation imposed by the State of New Jersey, as do also the Pennsylvania and Baltimore & Ohio.

Not all the railways are in agreement with the basis on which the Interstate Commerce Commission requires that overhead costs shall be divided as between passenger and freight operation; some consider that the passenger service debit is too high. But with the figures as they are, it is not surprising that, where from one-half to three-quarters of the net freight operating revenue is going to meet the passenger service losses, the question should be raised as to whether freight rates are not at excessive levels in order to balance the passenger deficit. Railway stockholders also are inclined to look askance at traffic which cuts so heavily into railway profits, and the officers of some railways, notably the Southern Pacific and the Norfolk & Western, in recent months have been publicly questioning the propriety of continuing any passenger service at all.

Withdrawal of passenger services, however, is by no means easy in the U.S.A. Permission has to be obtained from the Interstate Commerce Commission and from the traffic commissions of individual States, and in some cases months, if not years, have elapsed before authority has been obtained for the suspension even of individual trains which have been losing money heavily. Other railways are doing their utmost to make their passenger services less unprofitable, by the introduction of ultra-lightweight stock which, even at some sacrifice of traditional American train spaciousness and luxury, can be operated at high speeds with less locomotive power, or by the use of the newest diesel-hydraulic railcars which require smaller train crews and are therefore more economical. American railway officers are not be envied in the difficulties that face them in finding a solution to this perplexing problem.

Letters to the Editor

(The Editor is not responsible for opinions of correspondents)

British Railways Rolling Stock

August 28

SIR,—May I refer to the letter from Mr. A. G. M. Pritchett, dated August 13, which was published in your August 23 issue?

We on the Southern Region feel there is much to commend the Hastings diesel trains, particularly in their good performance, which is equivalent to that of electric trains, and is eminently suited to the heavily graded and curved line between Charing Cross and Hastings; and we do not agree they are a blemish on the countryside.

Under our electrification proposals the majority of Continental boat trains will in future be worked by electric multiple-unit stock, the remainder being operated by electric locomotives or by diesel-electric locomotives.

Meanwhile the existing Dover boat trains are composed almost wholly of post-war built rolling stock; a good proportion of the vehicles are of British Railways standard design.

Yours faithfully,

F. D. Y. FAULKNER
Public Relations Officer

British Railways, Southern Region,
Waterloo Station, S.E.1

THE SCRAP HEAP

Treasure in the Tube

A London man who boarded a tube train at the Bank station recently found in it a bag containing almost £19,000 in cheques and postal orders. On reaching home, he telephoned the bank named on a slip inside the bag and it was collected by a bank official.

Inter-Board Competition

1957: London Electricity Board, rebelling against high postal charges, is to deliver its bills by hand.
1958: Post Office gives up electricity for lighting and returns to candles.
1959: British Railways buys coal mine and digs its own coal.
1960: Gas Board prints its own money.
—*"Peter Simple" in "The Daily Telegraph."*

Livewire 'Possum

We are indebted to Mr. H. R. Hauptmann, Chairman of the Victorian Railways Public Relations & Betterment Board, for account of how a flying phalanger (a small species of opossum) delayed the Melbourne electric suburban trains.

Australians, he states, have a strong affection for the phalanger, but its inquisitiveness and predilection for climbing makes it unpopular with the electrical overhead gear staff of the Victorian Railways. Recently one of the species ran up a steel standard supporting the overhead equipment and was electrocuted as it tried to do a tight-rope act on the power line.

When such an incident occurs in daylight, the brilliant flash after the short circuit is invariably seen by residents, with the result that the body is removed promptly and little delay is caused to train services. On this occasion, however, the ill-fated opossum was killed at 4 a.m., and as the short circuit could not be located, overhead gear men had to traverse every foot of the section of the line before discovering the body lying across a power line in a cutting.

Secret Diesels

The Southern Region's new diesel trains, the ones that run to Hastings, undoubtedly have many merits, technical and other. But in one respect they are a sad disappointment; they look just like other trains and could, indeed, be mistaken easily for old, unremarkable electrics.

Unlike the Southern Pacific, the Southern Region likes to keep its diesels secret, or at any rate to hide them away discreetly. No panting monster draws the trains to Hastings. Instead a series of diesel generators has been disposed along the coaches in those modest, dark compartments usually reserved for luggage.—*From "The Manchester Guardian."*

The First Train in Argentina

On the first railway in Argentina—the six miles from Parque (now Plaza Lavalle) to Floresta—the first trials were marred by an accident on the return journey. It was decided to increase speed, and the engine left the rails and fell into a ditch, but the coaches, in which were travelling a number of notables, including Bartolomé Mitre and Domingo Faustino Sarmiento (after whom the two existing railways have been named), did not overturn. It was decided to keep the mishap a secret so as not to alarm the public. Further trials being successful, the official inauguration took place on August 30, 1857. The building of this pioneer line, although with Argentine capital, was due to the initiative of a young English engineer, Thomas Allan, as a result of which the railway was equipped with British material. He was accompanied by his brother John, who was the first driver of the original locomotive *La Porteña.* All the children of both brothers were subsequently employed on the railway.

Early Named Trains in Rhodesia

In one of a series of articles in *Rhodesia Railways Magazine,* on the early days of the Rhodesia Railways, as recorded in contemporary General Manager's monthly circulars, Mr. A. C. Durrant states that a circular of 1905 refers to the non-availability of free passes in the "Zambesi Express" and "Rhodesia Express" from and to Kimberley, and he wonders whether these names will ever be revived. The first official reference to them appears to have been in connection with the opening of the Victoria Falls Bridge in 1905. Today, none of Rhodesia Railways trains is named. As railways in Rhodesia date only from 1893, when the Bechuanaland Railway Company was incorporated, the fact that named expresses were running only 12 years later shows considerable enterprise on the part of the management; the territory served was developing fast.

Heavy Brigade

Though usually abiding
In an unfrequented siding,
With the tackle, trucks and crane
Which make up the breakdown train,
We get cracking at the double
At the slightest sign of trouble,
For, if someone's off the track,
It's our job to put them back.
Are not we the heavy lifters,
Trained, tenacious trouble-shifters,
Striving stoutly, night and day,
To keep permanent the way?
Yes, we put in all we know
To restore the status quo,
Till you read, upon some board:
"Normal working is restored."
It's surprising what a fuss
All and sundry make of us,
When somebody's in a mess;
Swiftly comes the S.O.S.
But relief would be abundant
Could our jobs be made redundant,
Since our value to the show
Is in inverse ratio
To the work we have to do—
Which is quite a point of view.
Nice to think no one would squeal
If we never turned a wheel!

A. B.

Operating Difficulties at Lisbon Terminus

Photo] [*F. Fontaine*

Bo-Bo locomotive on traverser at Lisbon Rossio, Portuguese Railways; traversers are necessary for engine release at all platforms, because of length restrictions imposed by site

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

EAST AFRICA

New Deep-Water Berths at Mombasa

Construction of the four E.A.R. & H. new deep-water berths at Kipevu (Mombasa) of which the quay face and quay aprons are due to be finished by September, 1959, is proceeding to schedule. The deck of reinforced concrete has been designed to carry cranes and railway tracks essential to the operation of a modern port. Earthworks for the Kipevu project are being carried out by the E.A.R. & H. Engineering Department.

SOUTH AFRICA

Additional Harbour at Cape Town

S.A.R. & H. has approved a plan to build an additional harbour alongside the mole of the Duncan Dock as soon as sea traffic warrants this.

Escalators at Johannesburg Station

The first eleven escalators are being installed on the Johannesburg station platforms. Six reversible escalators are being installed on the European side of the station to the concourse above, with five on the non-European side, where the escalators will be completed first because the work on this side of the station has progressed further than the European side. Installation of this equipment is by Waygood-Otis (S.A.) Limited.

VICTORIA

Relocation Near Hume Reservoir

The main trunk line from Sydney to Melbourne crosses the border between New South Wales and Victoria formed by the Murray River at Albury, where there is break of gauge between the two State systems. About 10 miles up the river from Albury it is joined by the Mitta Mitta river and just below the confluence is the Hume Reservoir, originally constructed some 26 years ago.

At Wodonga, near Albury, a branch of the Victorian Railways takes off eastwards and runs to Cudgewa, and 63 miles of it had to be relocated at a higher level to avoid submersion in the reservoir. In 1954 an increase in the size of the reservoir was sanctioned, necessitating a further relocation of the line over an agrregate length of 8¾ miles, between Ebden and Tallangatta. Involved in these works was the raising of the 1,866 ft. Sandy Creek bridge by 8 ft. and its lengthening by two extra end spans under traffic. A new station to serve Tallangatta has had to be constructed at Bolga and also a road overbridge for the approach road to the new Tallangatta township. Passenger station buildings are being moved from the old to the new site and modernised, and at Bolga a locomotive and rialway depot is being provided. A timber-trestle bridge nearby is also being replaced by a steel and concrete structure.

INDIA

Railway Staff College

The capacity of the Railway Staff College at Baroda is to be nearly quadrupled. The number of officers in training at any one time is being raised from 30 to 110.

Khandwa-Hingoli Link

One mixed train each way is now running over the first 18·6 miles of the Khandwa-Hingoli line, opened in June.

This project, when completed, will link the northern and southern metre-gauge systems. Construction was inaugurated by Mr. Lal Bahadur Shastri, then Minister for Railways & Transport, at Khandwa in March, 1954. The link, when completed, will provide for through metre-gauge running from Ledo, in North East Assam, to Trivandrum and Tuticorin in the extreme South, eliminating transhipment at intermediate points. The Nizam's State Railway supported the project when it was proposed some years ago; but it was opposed by the Great Indian Peninsula (which feared loss of traffic) and was shelved.

CANADA

Volume of Freight Traffic

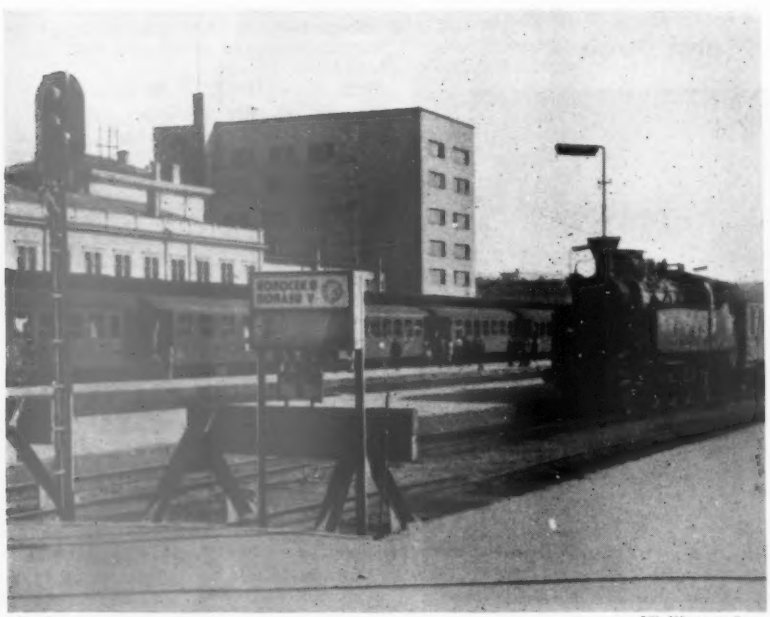
Number of cars of revenue freight loaded on Canadian railways from the beginning of the year to July 31 declined by 7·5 per cent. to 2,320,675 compared with the first seven months of 1956. Major commodities moved in reduced volume in the seven-month period were: grain, 208,772 cars (272,453 a year ago); coal, 126,722 (145,783); non-ferrous ores and concentrates, 81,265 (97,076); crude petroleum 14,071 (28,210); sand, gravel and crushed stone, 102,285 (112,682). Iron ore was moved in larger volume at 112,925 cars compared with 103,579.

UNITED STATES

Milwaukee Road Extends C.T.C.

The Chicago Milwaukee St. Paul & Pacific Railroad has completed what it claims to be the world's longest section of centralised traffic control operated by one despatcher. The recently completed installation embraces an area in Iowa between the Mississippi and Missouri, between Green Island (Iowa) and Council Bluffs (Iowa), 331 miles.

Rebuilt Station at Belgrade



Photo] *[K. Westcott Jones*

View towards international platforms and rebuilt blocks at Belgrade, Jugoslav State Railways. Note new lighting over all platforms, and type of colour-light signal

The first installation of C.T.C. on the Milwaukee Road, between Chicago and Omaha, was put into operation in 1942 on the 60-mile stretch between Council Bluffs and Manilla (Iowa). Subsequently additional C.T.C. sections east of Manilla were placed in service. With the recent installation westward from Green Island, the whole signal system was rebuilt to embody new and improved facilities.

C.T.C. has been in operation for some time on many sections of the C.M.S.P.P.RR. main line between Chicago, Milwaukee, St. Paul, Minneapolis, Butte, Spokane, Seattle, and Tacoma.

ARGENTINA

Minister of Transport Visits Bolivia

Rear-Admiral Sadi Bonnet, Minister of Transport, recently visited Bolivia to inspect work on the Yacuiba-Santa Cruz de la Sierra and Sucre railway, which is being built with Argentine capital.

Fire at Victoria Workshops

A severe explosion, caused by the bursting of a tube of oxygen, was the cause of a fire on August 9 at the Victoria shops of the General Mitre Railway. Considerable damage was done to the machinery and equipment, and several coaches were destroyed.

Derailment on Sarmiento Railway

A derailment took place on the early morning of August 10 near the Plaza Miserere terminus of the D.F. Sarmiento Railway, which at any other time would doubtless have caused many casualties apart from material damage. Two second class coaches of a train from Moreno jumped the rails at the entrance to the access tunnel and turned over on to their sides. They were severely damaged, as were the track and signalling installations. Traffic was not restored until several hours later, an emergency service being run meanwhile using the Once surface terminal.

SWITZERLAND

New Diesel Locomotives

The Swiss Federal Railways have decided that it is no longer economical to maintain their fleet of 217 steam locomotives (compared with 634 electric locomotives and 110 electric motor-coaches), for which 80,000 *tonnes* of coal, at an anuual cost of £550,000, have to be imported. Half of these are shunters, used mainly in marshalling work at depots at which not all the siding tracks have overhead electric equipment; 40 route miles of minor branches are still steam-operated; and the remainder of the steam units constitute a reserve for use when traffic exceeds the capacity of the existing electric stock.

Most of the steam locomotives are more than 40 years old, and of relatively inefficient types, and it is calculated that the expenditure of approximately £11,670,000 on 73 new diesel-electric locomotives will make it possible to abandon all the existing steam stock, and to save £750,000 annually in operation. The first six of the diesels have been ordered; they will be of the Bo-Bo type, Class "Bm 4/4," rated at 1,200 h.p. each. Sixteen more of this type also will be built, and in addition to shunting work, their relatively light weight will enable them to be used on secondary routes.

A total of 37 light six-wheel shunters of 600 h.p. also will be built, together with 14 heavy diesels of the Co-Co type, rated at 1,700 h.p., for marshalling and transfer work, and also for use on main lines in emergencies.

Publications Received

Sixteen On. Edited and with Introduction by Charles Irving. Line illus. by C. W. Bacon. London: Macmillan & Co. Ltd., St. Martin's Street, London, W.C.2. 8 in. × 5½ in. 240 pp. Price 16s. A collection of 16 stories and 10 vignettes chosen from work published from the time of Dickens to the present.—All the stories are about railways—they do not merely use railways as plot background. The field is wide: Mr. Irving has covered romance, mystery, humour, and murder. Although the book has obvious direct appeal for the railway enthusiast, the high quality of the stories by authors including Dickens, O. Henry, Kipling, Edgar Wallace, Freeman Wills Crofts, and Saki—makes it of equal interest to the general reader.

Molto o Poco? (Tariffe di ieri e di oggi). [*Much or Little? (Tariffs of Yesterday and Today)*]. By G. Ridarelli. Rome: Italian State Railways, Piazza della Croce Rossa, Rome. 8¼ in. × 4¾ in. 96 pp. Illustrated. Price Lire 350.—This attractive paper-covered book deals with the history of railway fares in Italy, and, to some extent, in other European countries. It is by no means the dry account its subject matter may suggest, and it is well-illustrated with maps, diagrams, photographic reproductions of paintings, and photographs. There are illustrations of many types of tickets and some old timetables, and at the end of the book there is a bibliography and a table of variations for superior trains from the standard fares since 1885.

Geographical Essays on British Tropical Lands. By R. J. Harrison Church, B. H. Farmer, C. A. Fisher, V. C. R. Ford, A. T. Grove, D. B. Mather, E. Paget, and R. W. Steel. London: George Philip & Son Limited, 30-32, Fleet Street, E.C.4, and Liverpool. 8¼ in. × 5½ in. × 1 in. 344 pp. Price 35s.—Amongst these useful essays, that by Mr. Harrison Church, entitled "The Transport Pattern of British West Africa," describes seriatim the transport problems of Sierra Leone, Ghana, Nigeria and the neighbouring French and other territories. Its chief interest centres upon the historical descriptions of the various railway systems concerned and gives a good idea of the great services they have rendered in developing these countries. The failure, hitherto, of a railway to penetrate the Sahara has led to a pattern of railway communications in each country based on their widely-differing Atlantic port facilities. Problems of river, road, and air service competition are frankly discussed, and the building up of the different railway systems in the face of many difficulties is a subject concisely dealt with and of absorbing interest. The maps are clear and assist materially in describing the various territories.

Die Gotthardbahn (The Gotthard Railway). By A. Eggermann, with introduction by Hermann Merz, Manager of Division II of the Swiss Federal Railways. No. 3 of a series issued by Vereinigung Schweizerische Lehrschau, Zürich. 15 pp. 11½ in. × 8¼ in. Illustrated.—This attractively written and informative account of the inception, construction, equipment and operation of the Gotthard Railway, one of the greatest of the international transit routes, has been issued in connection with its 75th anniversary, and deals with every aspect of the subject. There are a series of excellent coloured photographs of the line as it is today, drawings of the course of the celebrated spiral and main tunnels, locomotives, bridges, and so on, gradient and other diagrams, and a situation map of the Ritom lake and hydro-electric power plant. These various items are contained in an artistically produced folder.

Fork-Lift Truck Attachment Handbook for Users.—A publication of some 30 pages produced by R. H. Corbett & Co. Ltd., makers of Hydrum mechanical handling equipment, is designed to help the user of fork-lift trucks to make better use of his existing trucks or new machines which he may contemplate buying. This publication, which is believed to be the first of its kind in either this country or the U.S.A., includes sections on the development and effect of the usefulness of the fork-lift truck, effect on truck performance and rating, controls and the construction and use of various types of forks and attachments. The book, which costs 4s. may be obtained from the proprietors of the company, Woodfield Hoist & Associated Industries Limited, Rochester, Kent.

HAVING REVIEWED HIS JOB DESCRIPTION AND BEARING IN MIND HIS ACTUAL PERFORMANCE

1. KNOWLEDGE OF JOB: SHEET 2

Has exceptional knowledge of job.	Has a thoroughly good grasp of all phases of duties.	Job knowledge is satisfactory.	There is some weakness because of inadequate knowledge.	Needs more knowledge of this job.

ADDITIONAL COMMENTS: _____

2. INITIATIVE:

Demonstrates exceptional resourcefulness and originality.	Is very resourceful. Needs minimum of direction.	His initiative is satisfactory.	Should be more resourceful.	Does little or nothing out of the ordinary.

ADDITIONAL COMMENTS: _____

3. DECISION MAKING:

Shows exceptional ability in making decisions.	Is very good at making prompt and logical decisions.	Is satisfactory in decision making.	Should be better at making decisions.	Is unwilling or unable to make decisions promptly and logically.

ADDITIONAL COMMENTS: _____

4. DEPENDABILITY:

His dependability is exceptional.	His dependability is above normal requirements.	His dependability is satisfactory.	Tendency to shelve some responsibilities.	Cannot be depended upon.

ADDITIONAL COMMENTS: _____

5. ANALYTICAL ABILITY AND VISION:

Demonstrates exceptional foresight, and ability to marshall and interpret facts.	Work reflects very clear intelligent thinking and imagination.	Analytical ability and vision is satisfactory.	Should show more logic and imagination in his work.	Work shows lack of clear thinking and foresight.

ADDITIONAL COMMENTS: _____

Please use "additional comments" space wherever possible. Comments on strengths and/or weaknesses are useful during the interview and in assessing potential for advancement.

One of the forms used during the early stages of the personnel appraisal system in use on Canadian National Railways and described opposite

Personnel Performance Appraisals

Canadian National Railways scheme to ensure best use of all grades of personnel: initiated in 1953, the scheme is showing good results

ALTHOUGH up-to-date equipment and methods are important in the success of any undertaking, the future of any organisation, however large, depends ultimately on its employees. It therefore follows that personnel, as a system's most important asset, should be conserved and encouraged to ensure its most valuable use.

An essential factor of good management lies in the realisation that the human being can be helped to improve. When such help is given so that each employee develops to the maximum of his powers, the resultant situation will obviously be beneficial to both organisation and individual.

The need for systematic performance appraisal develops with the growth of the organisation. In every large undertaking there is a tendency for the employee to feel that he is a mere cog in a great mass of machinery. There is a similar danger that management will lose touch with the individual. When either or both of these situations arise, each side inevitably suffers.

Procedure

Mr. G. N. Daffern, formerly of the British Transport Commission, and now Manager of the Personnel Section, Personnel Department, Canadian National Railways, is convinced of the value of personnel appraisement, and, with the full consent and co-operation of Mr. Donald Gordon, C.M.G., President of the system, has devised an appraisal scheme which, initiated in 1951, is proving to be very successful. The C.N.R. began appraisals with its Vice-Presidents, with the following results:—

1. Competency at management level was assessed, and an estimate formed of potential material.

2. Development was initiated where most effective, i.e., among those whose influence was felt throughout the system.

3. Appraisals were begun on a proper footing. To be effective, these must be made in co-operation with all concerned, and such co-operation is more readily obtained when the humblest employee knows, on appraisal, that he is following procedure already applied to every individual in each higher grade up to and including the chief officers of the system.

Method

The method adopted is briefly as follows:—

1. A systematic appraisal of the individual under review is made by that employee's immediate superior and by two other persons also senior in rank. This committee of three must be acceptable not only to higher management but to the individual concerned. They must be persons thoroughly familiar with the individual while he is at work.

2. The employee's immediate supervisor usually leads the committee. He must present a pooled opinion and a report on the nature of the work done by his subordinate, and, in doing this, must guard against the exercise of undue dominance by the committee.

3. Accurate work description is the key to effective appraisal. This ensures that the report is realistic and personal, that working methods are properly assessed, and that a decision is taken on the personal qualifications required for the particular duties under review. An accurate work description also gives an indication of the probable result of the appraisal and forms a valuable aid toward the best method of assessment. A further benefit may accrue. The scope of a job very often changes over a period of time and, unless some form of appraisal is applied, recognition of this development is not always officially made. This factor frequently forms the basis of a very real grievance on the part of the individual concerned: he may rightly feel that both pay and prestige suffer because the exact scope of his work remains undefined. Under a system such as that now being reviewed, this possibility is greatly minimised.

4. One appraisal form only should be marked and signed by the whole committee. Markings should reflect unanimous opinion but, where firm differences of opinion exist, these can be shown.

5. Each of the 15 factors covered by the appraisal should be discussed separately and, where necessary, a phrase may be suitably altered. Reports, statistics, and other control data should be consulted.

6. Any necessary modification or elaboration, and the inclusion of specific examples, are given under the heading "Additional Comments." This section, and the "Overall Summary" and "General" headings, very often provide a summation of individual performance and pointers to avenues for improvement.

The Interview

After appraisal by the committee, the following action takes place:—

The opinion reached by the committee is discussed by the individual concerned and his immediate supervisor (the head of the committee). At this point, the employee effectively adds his contribution to the appraisal.

It is very important that this interview should take place as soon as possible after the first appraisal is made. A time-lag may implant a suspicion of managerial disinterest in the mind of the individual under review. After the "Discussion of Appraisal" form is completed by the supervisor this and the first appraisal forms are forwarded to the Vice-President or Head of Department, copies eventually being returned for follow-up activity. This interview is considered to be the keynote of the whole operation and vital to the success of the appraisal.

The following points are recommended for particular attention:—

1. Discussion should take place on characteristics or practices where improvement appears to be necessary.

2. The subordinate should be encouraged to outline his ambitions and feelings about his work.

3. An optimistic note should be maintained throughout the interview, and the subordinate given the impression that his senior has belief in his ability.

4. Too much criticism should be avoided. A better result is usually obtained by discussing causes than by underlining inefficiency. Tact and care are necessary throughout the proceedings. On no account should the senior allow an argument to develop.

5. A direct question-and-answer approach should be avoided. Where this is made, the form itself becomes the centre of interest, and the friendly and informal atmosphere of the interview is destroyed.

6. Sufficient time must be allowed. If more than one interview seems necessary, this should be arranged. Time spent on the interview may well mean time saved at a later date, since each appraisal necessarily results in considerable follow-up work for each supervisor.

7. If the subordinate claims a weakness in any part of the appraisal, his opinion should be carefully listened to and welcomed. No system is perfect, and observations of this kind may well prove to be very helpful.

8. The supervisor should be a good listener.

9. Mutual respect and confidence should be the keynote of the interview.

Appraisal Review

At this stage, the appraisal is reviewed and an attempt made to assess the individual for management development and evaluation of potential.

The immediate supervisor of the employee under review now takes the appraisal to his own supervisor. This senior officer, together with another chosen colleague, in turn reviews the appraisal, and decides whether a fair appraisal has been made. If he does not find himself in agreement with the

(*Continued on page* 279)

SHEET 7

APPRAISAL REVIEW FOR MANAGEMENT DEVELOPMENT AND EVALUATION OF POTENTIAL

Name_____ **Position**_____ **Location**_____

The purpose of this stage of the procedure is to review the appraisal and to obtain a picture of present resources in management personnel. This review should indicate the employee's state of readiness for greater responsibility and show what development steps need to be taken.

1. After thorough consideration of the individual's Background, Performance and Personal Capabilities, and bearing in mind the avenues of advancement open for him, indicate his degree of potential.

1. HAS EXCEPTIONAL QUALIFICATIONS FOR ADVANCEMENT ☐
2. HAS BETTER THAN AVERAGE QUALIFICATIONS ☐
3. HAS AVERAGE CAPACITY FOR ADVANCEMENT ☐
4. DOES NOT QUALIFY FOR ADVANCEMENT—FOR ANY REASON ☐

2. State reasons for the above conclusion:

_____

_____

_____

3. A. If he has potential for advancement, what do you consider is the next step for him ? _____

B. What alternative steps, if any ? _____

C. Indicate his readiness for this next step, or steps:

READY NOW ☐ NOT READY ☐ Estimate approximate time required_____

D. Does he have further potential beyond the step(s) indicated ? (1) YES ☐ (2) NO ☐
(3) CANNOT SAY AT THIS STAGE ☐

4. If he has potential for advancement, but needs development, what experience, training, etc., do you suggest to prepare him ?

_____

_____

5. Are there any factors which might prevent his advancement, or relocation ?

_____

_____

6. If a previous appraisal review of this person has been done, compare it with this review and explain any change in potential rating, advancement steps or development needs:

_____

_____

REVIEW MADE BY:_____ **DATE OF REVIEW:**_____

NAME _____ TITLE_____

NAME _____ TITLE_____

NAME _____ TITLE_____

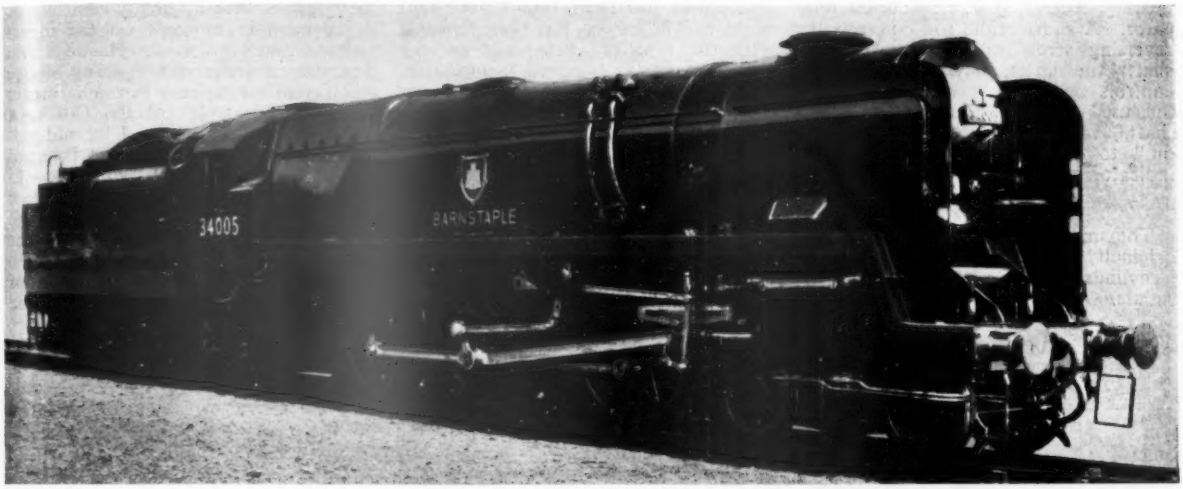
APPROVED BY:

NAME_____ TITLE_____ DATE_____

An example of the type of form used during later stages of the C.N.R. performance appraisals

Modifications to "West Country" Pacifics

New inside cylinder provided: three independent sets of Walschaerts valve gear



Modified Southern Region "West Country" class locomotive No. 34005, "*Barnstaple*"

THE "West Country" class locomotives were introduced on the Southern Railway in 1945, and were a lightweight version of Mr. O. V. S. Bulleid's "Merchant Navy" class Pacific locomotives. Of these locomotives, 104 were built at Brighton and six at Eastleigh, between the years 1945 and 1951, and they include, in addition to those which were named after places in the West Country, others which bore names associated with the Battle of Britain.

The "West Country" class, like the more powerful "Merchant Navy" class, has given sterling service and has shown the same excellent steaming capabilities and free running characteristics. It incorporates most of the same design features as did the "Merchant Navy" class locomotives when built, a number of which are not normally employed in British locomotive practice. Among these features are a three-throw crank shaft, chain driven from the driving axle, which operates valve gear for each of the three cylinders. Each gear is connected to its respective piston valve through a rocking lever arrangement having a 3:8 ratio. There is also an oil-bath enclosing the three sets of special valve gear and the inside motion. This is intended to give continuous lubrication to the working parts. The smokebox is of irregular shape, as opposed to the more usual cylindrical form, and there is a special casing over the whole of the upper part of the locomotive.

As with the "Merchant Navy" locomotives, these features have not proved to be completely satisfactory and this in turn has reflected on performance and maintenance. Also, consumption of coal, oil, and water has been at a fairly high level. A number of the "West Country" class is, therefore, being modified on similar lines to the "Merchant Navy" class, in accordance with designs prepared at Brighton under the direction of Mr. W. J. A. Sykes, Chief Mechanical & Electrical Engineer, Southern Region, in consultation with Mr. R. C. Bond, Chief Mechanical Engineer, British Railways Central Staff, British Transport Commission. The work of preparing the new details is being carried out mainly at Eastleigh Locomotive Works with assistance from Ashford Works, and locomotive No. 34005, *Barnstable*, has now been completed at Eastleigh.

Cylinders

The three-cylinder arrangement has been retained with the cylinders in their former positions driving on to the middle coupled axle. A new inside cylinder is provided, but the two existing outside cylinders have been re-used, the cylinder dimensions, 16½-in. dia. and 24-in. stroke, being retained; the piston valves remain at 10-in. dia. The new inside cylinder is a steel casting having cast iron liners to both the cylinder barrel and the steam chest, the latter being offset to the right, and arranged for inside admission. The steam chests of the outside cylinders are placed on the same vertical centre line as the cylinders and are arranged for outside admission.

The piston rods are provided with United Kingdom type cast iron packing. This design is also used for the valve spindles of the outside cylinders, and experience on the modified "Merchant Navy" class has shown them to be entirely satisfactory for the high-pressure gland made necessary by outside admission. The piston rods are attached to the piston heads by means of a parallel fastening and to the new crossheads by means of the normal cone-and-cotter attachment. The cylinder cocks are steam operated.

Oil Bath Removed

The oil-bath, which was a feature of the original locomotives, has led to an excessive use of oil and also corrosion of the steel motion details caused by the entry of water, and ensuing emulsification. The oil-bath is accordingly dispensed with, and thus the motion and valve gear of the inside cylinder are no longer completely enclosed, enabling the various working parts to be readily examined.

Three independent sets of Walschaerts valve gear are provided, being almost exactly similar to the new valve gears fitted to the "Merchant Navy" class. The outside gears are arranged for outside admission to suit the existing cylinders and, because of the offset between the centre line of the valve gear and the axis of the steam chest, a suspension link is employed to carry the weight of the valve gear and eliminate the normal valve spindle crosshead guides. A short link connects the suspension link to the valve spindle crosshead. The piston valves for the outside cylinders have a maximum travel of 6¾ in., and each head is fitted with four narrow rings. The return crank rod is attached to the return crank though a self-aligning ball bearing.

The inside valve gear is driven by an eccentric mounted on the right-hand crank web of the driving axle, being spigoted to the web and held in position by five studs. The valve gear is of orthodox design, and is arranged for inside admission, the maximum travel being 6$\frac{11}{32}$ in. The steam reversing gear has been replaced by a manual reversing

gear, the screw of which is located on a bracket attached to the outside of the main frame midway between the left-hand driving and trailing coupled wheels. This is driven by a shaft from the cab fitted with universal joints, the cab containing only the handle, spur gearing, locking gear, and cut-off indicator. A short bridle rod connects the reversing screw nut to the reversing shaft; the latter, having three arms, controls the three valve gears without the use of an intermediate reversing shaft. The handle in the cab is "face-on" to the driver, and the cut-off indicator is of the drum type.

Smokebox

The smokebox of irregular shape, as originally fitted, has been replaced by a cylindrical smokebox resting on a saddle. As in the case of the modified "Merchant Navy" class, this saddle is formed partly by the upper portion of the new inside cylinder and partly by a new fabricated saddle stretcher which is bolted to the front of the cylinder casting. The multiple-jet blast pipe has been retained, but a new cast iron chimney of large diameter has been provided, this being fitted with a petticoat and ejector exhaust ring. No self-cleaning plates are visualised, experience with the modified "Merchant Navy" class having shown that the shape of the smokebox itself makes it reasonably self-cleaning. The existing smokebox door of elliptical shape is retained, but the superheater header has been renewed so as to provide three flanges for individual steam pipes to each cylinder.

The casing formerly fitted over the whole of the upper part of the locomotive has been dispensed with, and the boiler is provided with the normal type of clothing plates mounted on crinolines. Footplating along the sides of the engine follows, generally, the form of that on the British Railways standard locomotives. It is, however, carried by brackets from the main-frame, except for the portion adjacent to the firebox. Smoke deflector plates are provided on each side of the smokebox.

No substantial alteration has been made to the boiler, which retains its steel firebox and thermic syphons. The former grate, which incorporated both rocking units and a "drop" section, and which has been found somewhat unreliable in service, has been replaced with the type of grate used on the British Railways standard locomotives, having unit firebars which are assembled on their respective carrier bars by sliding into position. The rocking sections are divided into two groups which can be rocked separately, being situated on either side of the longitudinal centre line. In each group, there are five carrier bars, each fitted with 15 unit firebars.

The ashpan, previously fitted to the majority of the "West Country" class locomotives, was without damper doors, permanent openings being provided for the inlet of air to the grate. Whilst simplifying the construction of the ashpan and eliminating damper doors and operating gear, this arrangement has, on occasion, made the control of the fire and the prevention of blowing off at the safety valves somewhat difficult.

An entirely new ashpan has, therefore, now been fitted and this is provided with damper doors and the standard type of butterfly doors at the bottom for self-emptying. The ashpan is divided into three parts, there being a central section between the frames, and two outer sections, all three of these being constructed in the form of hoppers.

One damper door facing forwards is applied to each of the three sections. The three damper doors are in line, and are connected to a transverse operating shaft fitted with a simple type of universal joint in order to eliminate any tightness which might be caused by slight distortion of the ashpan. A similar arrangement is applied to the hopper doors at the bottom, these latter being operated from the ground by means of a short lever which takes the same bar as that used for operating the rocking grate. The operation of the damper doors is by means of a single screw control on the footplate.

Full-Width Cabs

The first 70 "West Country" class locomotives were originally designed so as to be able to work on the direct route from London to Hastings via Tonbridge, where the loading gauge was severely restricted through certain tunnels. The width of the cab was, therefore, limited to 8 ft. 6 in. and this has tended to restrict the forward vision through the cab windows. In actual fact, the "West Country" class has never been employed on the Hastings route, and now, with the adoption of diesel-electric self-propelled trains, any reason for the retention of the narrow cabs is finally removed. The opportunity has, therefore, been taken to move the cab sides outwards and apply a new centre roof section so as to bring the cab width up to 9 ft. as in the case of the "Merchant Navy" class and the final 40 "West Country" class. In addition, the lower portion of the side sheeting is cut away and the new type of link-supported cab roof ventilator fitted.

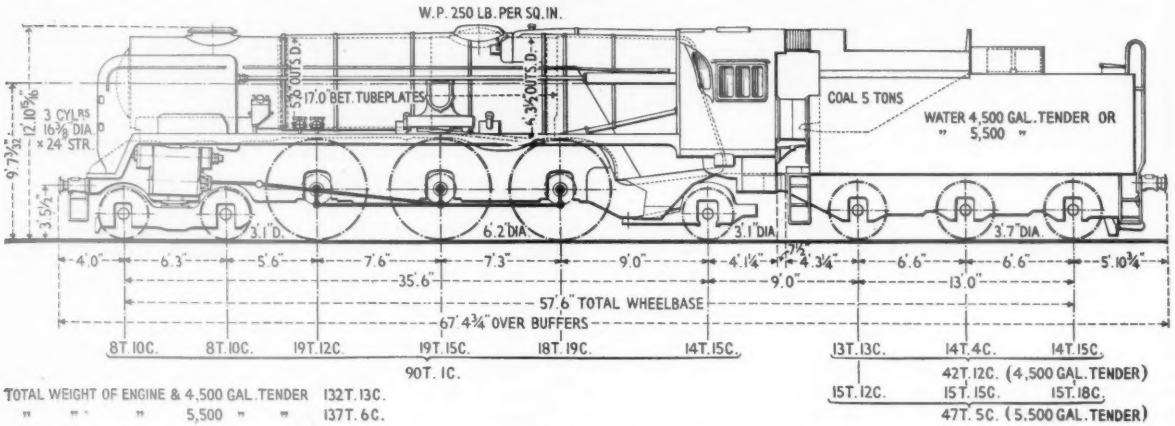


Diagram showing principal dimensions and weights of locomotive

Control Layout

Little alteration has been made to the driving controls attached to the boiler, but the elimination of the steam reversing gear and its replacement by a handwheel, gearbox, and indicator drum, has altered the layout on the left hand side. The Ajax type of firehole door is retained but the steam operating mechanism has been dispensed with. The firehole itself is fitted with a deflector plate to improve combustion.

Two Wakefield mechanical lubricators are situated on the footplating over the leading pair of coupled wheels on each side of the locomotive. They are driven by a short arm mounted on the outside expansion links. Three of these lubricators, each having six feeds, have been removed from their former position in front of the smoke-

box and are used for supplying the cylinders and steam chests with superheater cylinder oil. The remaining lubricator, on the right hand side of the engine, has 12 feeds and supplies engine oil to the axleboxes and so on. The oil to the steam chests is atomised and is introduced into the steam pipes, feeding each of the three cylinders. The barrels are lubricated by non-atomised feeds passing through the cylinder walls near the vertical centre line at top and bottom. Other feeds pass to the piston rod packing and the valve spindle rear bush. The coupled axleboxes are, at present, fed with engine oil at the crown but, in due course, as the existing axleboxes have to be renewed, the feed will be transferred to the tray which accommodates the oil pad on the underside of the bearing.

Mechanical Axlebox Feeds

The provision of mechanical feeds to the axleboxes eliminates the large multi-feed oilboxes formerly fitted in the cab. Mechanical feeds are also applied to the slidebars and the inside valve spindle crosshead guides. The axlebox guides and inside piston rod swab box are lubricated by trimming feeds in small auxiliary oilboxes attached to the footplating, similar oilboxes adjacent to the point of application lubricating the outside piston rod swab boxes. The majority of the valve gear is lubricated by grease.

Because of the removal of the casing over the upper part of the locomotives, the previous sandboxes have been replaced by new ones, those for the leading pair of wheels being placed above the footplating adjacent to the back end of the smokebox, and those for the driving pair of wheels being between the frames. Steam sanding gear, applied to the leading and driving coupled wheels, is arranged for forward running. In addition, sandpipes are provided behind the driving wheels for reverse running, and replace the gravity sanding gear which was previously fitted to the front end of the tender for this purpose. Steam sanding is thus provided for both forward and reverse running.

The drawgear between engine and tender has been modified in a similar manner to that which has proved beneficial on the "Merchant Navy" class, and incorporates a plunger, sliding in guides in the tender dragbox, which is pin-jointed to the drawbar itself. The plunger is controlled by a heavy rubber spring drawing the engine and tender together, and bringing the curved rubbing blocks into contact. These rubbing blocks, faced with manganese steel, are so shaped that relative lateral movement between engine and tender does not increase the loading of the drawbar and spring.

To facilitate the taking of water, the side raves of the tender have been cut away, this having the effect also of eliminating pockets where surplus coal tends to accumulate uselessly. Casings have been placed over the vacuum reservoirs on the top of the tank to the rear of the coal bunker, also in order to eliminate accumulations of coal. Compartments for the fire irons are provided on either side of the bunker.

External Feed Sumps

External feed sumps with shut off valves have been added to enable the sieves to be removed and cleaned without emptying the tank. This feature has been found effective in reducing injector trouble, resulting either from the clogging of sieves or the choking of the annular orifices of the Monitor injectors by fine particles of coal. A water level indicator of the float type is provided.

The following firms have supplied equipment in connection with these modifications:—

Ball bearings for return crank rod	Skefko Ball Bearing Co. Ltd.
Mechanical lubricator ..	C. C. Wakefield & Co. Ltd.
Elbows for smokebox steam pipes	Munro & Miller Limited
Reversing gear, transmission tube, complete	Hardy, Spicer & Co. Ltd.
Mintex liners for boiler support	British Belting & Asbestos Limited
Gaco "U" packing for cylinder cocks	Geo. Angus & Co. Ltd.
Tufnol round rod Swan brand for sanding valve handle	Tufnol Limited

Personnel Performance Appraisals

(*Concluded from page* 276)

udgment he returns it for further action.

On receiving a satisfactory appraisal, the higher committee evaluates the employee under appraisal for advancement potential. An appropriate form is completed and submitted to yet higher management for approval and subsequent collation at department head level. Here it is used in compilation of the annual inventory of management personnel.

Follow-up Action

Some benefits will already have resulted from the completion of the three stages described above. The very act of appraisal usually results in the acquisition of useful facts. Information obtained is not always confined to the subordinate alone—very often (and not always so welcome!) light is thrown on the supervisor's own performance, organisation, and methods. During the post-appraisal interview, both supervisor and subordinate can learn something from the other. At the review and evaluation of potential stage, facts are gained which may prove useful at a later date when increased managerial material is required.

Each department decides the disposition of its own appraisal records. As a general rule, the records of review and evaluation should be retained at a higher level than those of appraisal, which are essentially instruments for use by the immediate supervisor and as such should be readily available.

Pitfalls

As is the case with other appraisal procedures, the method here described is necessarily far from perfect. The complexity of human nature makes an accurate assessment of work done and potential possessed a very difficult task. It may be of interest to study the following factors, which experience has shown to constitute pitfalls for the unwary:—

1. A personal affinity—similar characteristics, background, etc.

2. Imagined effect of the appraisal on the supervisor's own position. For example: A favourable judgment may flatter the ego ("I trained him"), or constitute an apparent threat to security ("they'll be giving him my job").

3. Although overall success is not necessarily reflected in every aspect of an individual's work, a tendency exists to praise each action of a good subordinate. This, apart from possible inaccuracy, can scarcely improve the individual concerned.

4. At the other end of the scale is the individual who has failed occasionally or often in the performance of his work. Here, a tendency could exist to consider such an employee as "hopeless," and such a tendency must be avoided.

5. While one supervisor may demand too much, another may ask too little from a subordinate. The first seldom admits good work; the second is too easily pleased. Both exhibit weaknesses which usually result in poor departmental morale, especially where the two supervisors work under the same salary structure and promotion arrangements.

Conclusion

To attain the maximum measure of success from the operation of the Personnel Performance Appraisal scheme outlined above, it is essential for every individual to co-operate both in the course of his own appraisal and when assisting in those of others. When such co-operation takes place, improvements in efficiency and morale become immediately apparent.

RADIO-TELEPHONY ON N.E. REGION C. & D. SERVICES.—The North Eastern Region is to undertake experiments in the use of radio-telephony in its collection and delivery services. During the working day, as traders' requirements become known, messages can be passed to the cartage vehicle drivers working near any particular firm or firms. Such comunication is of particular benefit to traders with urgent traffic needing to be picked up at short notice. To test the possibilities, a contract has been placed with Pye Telecommunications Limited for radio-telephone equipment to be installed on goods delivery vehicles at Newcastle, and on parcels delivery vehicles at Leeds.

Ore Traffic in Southern India

Increasing line capacity to cater for growth in traffic

BOTH iron and manganese ore deposits are worked in that part of India south of a line running due east and west through Bombay. Before the last war only one concern, a Belgian firm, the General Sandur Mining Co. Ltd., was actively engaged in mining manganese ore at Deogiri, whence it was (and still is) carried by the company's aerial ropeway to Samehalli station, the terminus of a branch line of the Southern (ex-Madras & Southern Mahratta) Railway from Hospet, near Bellary in Sandur State. The ore was railed from Samehalli to Mormugao Harbour.

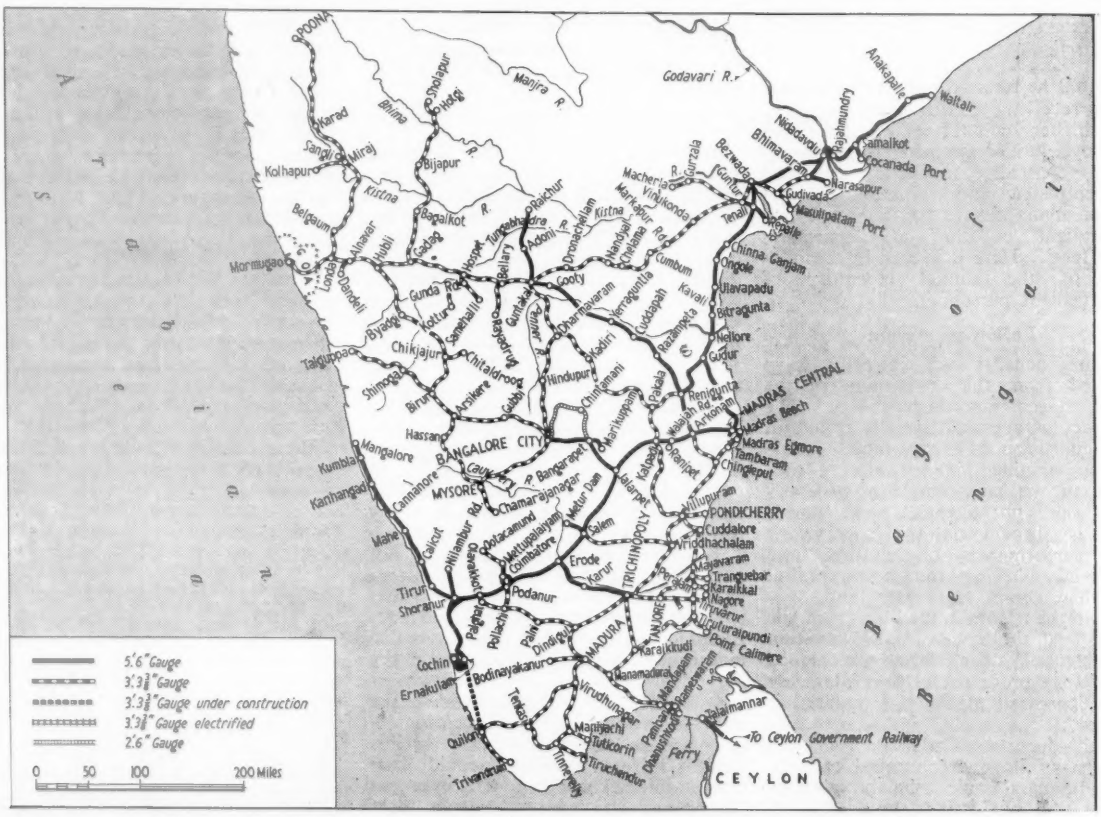
Soon after the war there arose an ever-increasing demand for iron ore by Belgium, Holland, Denmark, and especially by Japan, and by 1951 extensive mining operations had begun in most ore-bearing areas. Only limited quantities of high-grade iron ore were available, but there was also a market for low-grade ore. The most important areas where these activities have since been carried on are near Collem, Kalay, and Sanvordem in Goa, and around Bellary and Hospet. Manganese ore is also produced in large quantities in the Londa-Dandeli and other areas near Bangalore in Mysore State. Londa is the junction for Goa and Mormugao Harbour on the Southern Railway metre-gauge main line from Bangalore to Poona. The latest area to be worked is near Bezwada, on the East Coast, where large quantities of fairly high grade iron ore lie near the surface.

This expansion of mining development from 1951-52 to 1956-57—indicated by a rise in output of all ores from 361,000 to 885,000 tons—has thrown a considerable burden on the Southern Railway and caused considerable congestion at the east coast ports of Madras, Vizagapatam, Cocanada, and Masulipatam, especially since 1955, when, for political reasons, the Londa-Mormugao railway was closed. The only other port available for exporting this ore was Bombay.

Apart from traffic from the Londa area direct to Bombay via Poona, almost the whole of the remainder—except that from the Bangalore area—has to pass through the important broad-metre-gauge junction, Guntakal. From the Hospet-Bellary area it enters Guntakal by metre-gauge from the west. A small volume can continue to Masulipatam port by metre gauge via Bezwada, but the capacity of that route is only about 63,000 tons a year. The great bulk of it must therefore proceed thence to Madras and other east coast ports by broad gauge via Arkonam. At present the capacities of the Hospet-Bellary-Guntakal metre-gauge line and of the broad-gauge route onwards to Madras—part of the Bombay-Madras trunk line—are limited, as is the transhipment capacity of Guntakal.

Increasing Line Capacity

The capacities of Bombay and Vizagapatam ports are ample and the Madras port authority has plans to increase the handling capacity there to 1,000,000 tons annually. On the other hand, the rail capacity for moving ore into that port from various areas is only 628,000 tons. The Southern Railway has therefore prepared plans to increase the capacity of the Hospet-Guntakal and Guntakal-Madras sections to enable 1,000,000 tons of ore to be moved to Madras. Four additional crossing stations on each of these sections and the lengthening of loops on the latter, with the addition of many second loops on both sections, will go far towards this end. It will be attained when extra transhipment facilities are provided at Guntakal and additional yard facilities at six other stations.



The Southern Railway of India and associated lines, showing connections with ports

RAILWAY NEWS SECTION

PERSONAL

Mr. S. C. Robbins, an Under-Secretary to the Ministry of Supply, has been appointed Chief Contracts Officer at British Transport Commission Headquarters. Mr. R. B. Hoff, Chief Stores Officer, B.T.C. Headquarters, has been appointed Chief Supplies Officer, consequent on the re-designation of the Stores Department as Supplies Department, with some increase in its responsibilities.

Lt.-Colonel H. B. Everard
General Manager, Rhodesia Railways, who is retiring

Mr. J. W. S. Pegrum
Appointed General Manager, Rhodesia Railways

Mr. J. N. Fraine, General Manager, Eastern Region, Canadian Pacific Railway, has been appointed Vice-President of the Pacific Region of that system. He succeeds Mr. W. Manson, who has retired.

Mr. Bernard Dyer has been appointed General Manager, Planning Division, of F. Perkins Limited, and Mr. Gordon Smith has been appointed Deputy General Manager, Manufacturing Division. Both have been Deputy Planning Controllers of the company since 1955.

Lt.-Colonel H. B. Everard, D.S.O., A.M.I.C.E., General Manager, Rhodesia Railways, who, as recorded in our August 23 issue, will join the board of that system when he retires next January, was born in 1897 and educated at Marlborough and Trinity College, Cambridge. His entrance to the University was deferred owing to the outbreak of war in 1914. Joining the Rifle Brigade as 2nd Lieutenant in 1915, he saw service in France, was promoted to Captain in 1916 and was wounded on the Somme. During 1918 he was engaged at the Foreign Office under the late Lord Balfour and Lord Curzon of Kedleston, and was sent to Egypt and Palestine in 1919, being demobilised on his return to England at the end of that year. In 1922 Colonel Everard joined the Midland Railway as a cadet and was posted to the New Works Department. In 1924 he was appointed Resident Engineer on the construction of several new colliery branches and subsequently supervised the construction of the Mid-Notts Joint Lines. In 1931 he was appointed Chief Assistant to the District Engineer, Derby (South); three years later he was appointed District Engineer, Derby (South), and became Senior Assistant (Permanent Way), Chief Civil Engineer's Department, L.M.S.R., Watford H.Q., at the end of 1934. During the 1939–45 war he served in France and was taken prisoner in 1940. He was awarded the D.S.O. and mentioned in despatches for gallantry in the field. He resumed duties in September, 1945, as Assistant Engineer (Permanent Way), and was appointed Engineer (Permanent Way) in 1947, and became Chief Officer Engineering (Maintenance), Railway Executive in 1949. He was appointed General Manager, Rhodesia Railways, in 1952.

Mr. William Mason, Vice-President, Pacific Region, Canadian Pacific Railway, has retired after 48 years of service.

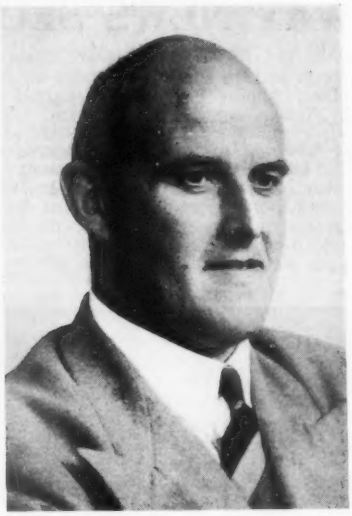
Mr. J. W. S. Pegrum, Deputy General Manager, Rhodesia Railways, who, as recorded in our August 23 issue, has been appointed General Manager of that system, was born in 1899, and joined Rhodesia Railways in 1925 after war service with the Royal Navy. In 1927 he was appointed Station Foreman at Amatongas, subsequently becoming Stationmaster at Dondo and, later, a Traffic Inspector, in which capacity he served at Broken Hill, Beira, and Bulawayo from 1933 to 1939. Mr. Pegrum became Stationmaster at Broken Hill and, in 1943, Stationmaster at Bulawayo. In 1945 he was appointed Assistant Operating Superintendent, Broken Hill, and, in 1948, District Superintendent. He became Deputy Chief Superintendent of Transportation in 1952 and Chief Superintendent in 1954. His appointment as Deputy General Manager dates from March 1, 1956. During the African Railway Workers' strike last year he acted as General Manager. He takes up his new appointment in January next year.

Mr. A. J. Johnson has been appointed Assistant Commercial Officer, Euston, London Midland Region, British Railways, and not Assistant Operating Officer, Euston, as recorded in our August 30 issue.

Mr. D. M. Howes, Assistant to the Chief Operating Superintendent, Scottish Region, British Railways, has been appointed Assistant (Freight Services), Euston, London Midland Region.

Mr. J. Royston

Appointed Divisional Traffic Manager, Manchester, London Midland Region



Mr. G. B. Gray

Appointed Divisional Traffic Manager, Barrow, London Midland Region

The late Lt.-Colonel E. W. Slaughter

Who was Managing Director of the Nizam's State Railway, 1941-46

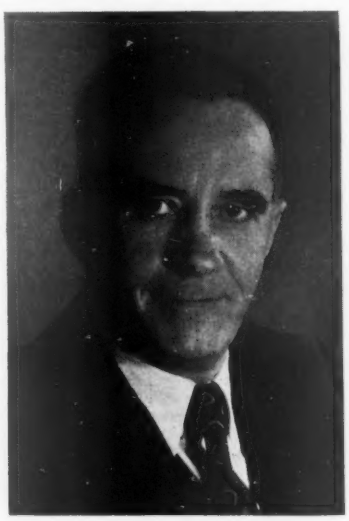
Mr. J. Royston, A.M.Inst.T., Divisional Operating Superintendent, Manchester, London Midland Region, British Railways, who, as recorded in our August 2 issue, has been appointed Divisional Traffic Manager, Manchester, London Midland Region, entered the service of the Great Northern Railway at Retford in 1918. After serving in the District Superintendent's office at Nottingham, he became a Traffic Apprentice in 1927. In 1930 he went to Grimsby Docks as Assistant Yardmaster and, in 1932, to Immingham as Yardmaster. He returned to Grimsby Docks as Yardmaster in 1934. In 1937 Mr. Royston was appointed Chief Signalling Inspector, Superintendent's Office, Western Section, Liverpool Street, from which position he transferred to Manchester in 1940 as Assistant District Superintendent, L.N.E.R., being appointed District Superintendent in 1945. He returned to Liverpool Street in 1948 as Assistant Operating Superintendent (Western), Eastern Region, and was re-designated Assistant Divisional Operating Superintendent (Western) in 1949. He became Divisional Operating Superintendent, Manchester, London Midland Region, in May, 1954.

Mr. G. B. Gray, British Railways General Agent, Dublin, who, as recorded in our August 16 issue, has been appointed Divisional Traffic Manager, Barrow, London Midland Region, was educated at Leeds Grammar School and St. Catherine's College, Cambridge, and joined the L.N.E.R. in 1932. After training he was appointed Assistant to District Manager, Peterborough, in 1935, and a year later moved to the Chief General Manager's Office, Kings Cross, as Assistant to the Industrial Agent. Between 1937-48 he occupied positions on the L.N.E.R. as Assistant to District Manager, Nottingham (1937-39); Assistant to District Goods & Docks Manager, West Hartlepool (1939-41); Acting Assistant District Goods Manager, Leeds (1941-44); Assistant District Goods & Passenger Manager, Lincoln (1944-46); and Assistant District Goods Manager, Manchester (1946-48). In 1948 Mr. Gray was appointed Assistant District Goods Manager, Leeds, North Eastern Region, and in 1949 Acting District Passenger Manager, Leeds. In April of the following year Mr. Gray became Assistant District Goods Superintendent, Leeds, and four months later was appointed District Passenger Superintendent, Newcastle. He was appointed General Agent, Dublin, in March, 1952.

The late Lt.-Colonel E. W. Slaughter, C.B.E., M.I.Mech.E., M.Inst.T., whose death was briefly recorded in our August 30 issue, served in the 1914-18 war as an

Mr. C. G. Reddington

Appointed Planning Officer (Kings Cross), Eastern Region



Mr. J. M. Vlok

Appointed System Manager, Cape Midland, South African Railways

Mr. J. A. de Wet

Appointed System Manager, Cape Eastern, South African Railways

Mr. J. L. Toole

Who has been appointed Comptroller, Canadian National Railways

Mr. W. P. Moffat

Appointed Co-ordinator of Data Processing, Canadian National Railways

Mr. R. D. Armstrong

Appointed Vice-President, Accounting & Finance, Canadian National Railways

Engineer officer. He joined the Egyptian State Railways as Assistant Chief Mechanical Engineer, and was promoted to be Deputy Chief Mechanical Engineer in 1933. He represented the E.S.R on many transport development and co-ordination boards, and on railway missions. He was appointed Deputy Locomotive Superintendent, Nizam's State Railway, in 1935, and afterwards officiated as both Locomotive & Carriage Superintendent and Chief Transportation Superintendent, before being appointed General Manager in 1936. In 1941 he became Managing Director of the Nizam's State Railway Board, responsible for the railway, road services and air development. He was also in charge of many other government activities. In 1946 he retired from India, and was appointed London Agent for the Nizam's State Railway, the position he held until 1948. Since then he has been engaged in business activities in this country. Colonel Slaughter commanded for nine years the Hyderabad Rifles. He held the Egyptian decorations of a Commander of the Order of the Nile and a Commander of the Order of Ismail. He was made an M.B.E. in 1917, and a C.B.E. in 1943.

Mr. C. G. Reddington, A.M.I.C.E., District Engineer, Kings Cross, British Railways, who, as recorded in our August 30 issue, has been appointed Planning Officer (Kings Cross), in the office of the General Manager, Eastern Region, joined the London & North Eastern Railway at Kings Cross in 1925. In 1927 he went to the Maintenance Office at Liverpool Street, and, in 1929, joined the staff of the District Engineer, Kings Cross, where he was engaged on the remodelling of the motive power depot. In 1935 he transferred to the Construction Office where he was concerned in electrification schemes. In 1937 he was appointed an engineering graduate. During the early part of the war Mr. Reddington was engaged on new works on the Liverpool Street-Shenfield Electrification Scheme and served at the temporary headquarters at Hitchin and Peterborough. In 1940 he was Acting Assistant District Engineer, Nottingham. Two years later he became Senior Assistant in the District Engineer's Office, Hadley Wood, where he took charge of the drawing office, and, in 1943, was appointed Assistant District Engineer, Stratford. In 1948 he became District Engineer, Ipswich, and in 1952, District Engineer, Kings Cross.

Mr. J. Meiring Vlok, System Manager, Cape Eastern System, East London, South African Railways, who, as recorded in our August 30 issue, has been appointed System Manager, Cape Midland, was born in Cape Province on January 12, 1911, and joined the railway service at Johannesburg on April 12, 1926, and was promoted to the office of the Railway Service Commission, Pretoria, on November 1, 1941. He became Principal Clerk in the General Manager's Staff Section, Railway Headquarters, Johannesburg, on August 1, 1947, and was transferred to the office of the Minister of Transport, Pretoria, on May 1, 1950. Subsequent promotions were: Administrative Secretary to the General Manager, Johannesburg (1952); Secretary to the Railway Board, Pretoria (1953); Administrative Secretary to the Minister of Transport, Pretoria (1954); Chief Superintendent (Parliamentary), Railway Headquarters, Johannesburg (1955); and System Manager, East London (1956).

Mr. J. A. de Wet, a relieving System Manager at Railway Headquarters, Johannesburg, South African Railways, who, as recorded in our August 30 issue, has been appointed System Manager, Cape Eastern System, joined the railway service at Springfontein in the Orange Free State on May 5, 1927. During that year he transferred to Kroonstad Station where he remained until November 28, 1928, when he became a clerk in the System Manager's Staff Section at Bloemfontein. He was transferred to the office of the Minister of Transport at Pretoria during June, 1932, and attached to that office until November, 1947, when he became Assistant Superintendent in the Public Relations Section at Railway Headquarters, Johannesburg. Subsequent promotions were: Superintendent (Special Duties), Commercial Branch, Headquarters (1952); Superintendent (Investigation & Research), Headquarters (1954), and Relieving System Manager (December 15, 1956).

Mr. John L. Toole, Assistant Comptroller, Canadian National Railways, who, as recorded in our August 9 issue, has been appointed Comptroller, was born in Guelph, Ontario, and is a Certified Public Accountant. He has taken extension courses in business administration at McGill University since graduating with a degree of B.A. (Commerce) from the University of Toronto. He was formerly Assistant Comptroller of the Ford Motor Company of Canada, and also held executive positions with Canadian Industries Limited and Dominion Rubber Co. Ltd. He became Assistant Comptroller, C.N.R., in 1954.

Mr. W. P. Moffat, who, as recorded in our May 24 issue, has been appointed to the newly created position of Co-ordinator of Data Processing, Canadian National Railways, Montreal, will be responsible for the operation and future expansion of the railways' integrated data processing system and computor centre. He joined Canadian National Railways in 1936 in the Bureau of economics, and the following year became junior assistant. After wartime naval service he returned to the Company as Assistant Engineer in the Research & Development Department, and in 1949 was made Office Engineer. Mr. Moffat later became Assistant Transportation Engineer, Transportation Engineer, and in 1955, Chief of Research.

Mr. R. D. Armstrong, B.Comm., F.C.A., who, as recorded in our May 10 issue, has been appointed Vice-President, Accounting & Finance, Canadian National Railways, is 41. He has been responsible for an intensive mechanisation programme which has seen electronic data processing machines of a most advanced type put to use for processing of Canada's largest and most complex industrial payroll. He has also administered a programme of personal training and reorganisation of methods in preparation for installation of integrated data processing by electronic computers on a company-wide basis. He joined the C.N.R. in June, 1953, as Associate Comptroller and became Comptroller the following April. He was named a Fellow of the Institute of Chartered Accountants of Ontario last year. He is also a member of the Queen's University Advisory Council, the St. James' Club of Montreal and the Metropolitan Board of Directors of the Y.M.C.A.

NEW EQUIPMENT AND PROCESSES

Two-Way Visual Intercommunication

A PICTURE transmission system developed under the name of Deccafax can transmit television style pictures and sound between points inter-connected with co-axial cable at distances of up to 2,000 yd. The Deccafax master unit can relay both sound and picture to modified standard television receiving sets for one-way announcements to waiting rooms, or to other master units for two-way speech/vision inter-communication in offices, stores, workshops or marshalling yards.

The transmitted picture can take many different forms, ranging from a hand written message on the face of the master unit screen to transparencies of a diagram or pro forma, or complete 35 mm. cine-films.

Master units can be inter-connected to feed different types of information to a central receiver for enlargement onto a viewing screen. Control can be exercised over the various inputs so that the main display shows only the specific information necessary at any one time.

The accompanying illustration shows two master units mounted on a single control consul.

Details of price and delivery can be obtained from the manufacturer, Decca Radar Limited, 60, Grosvenor Street, London, W.1.

Weatherproof Cement Paint

A WEATHERPROOF paint which can be applied to cement and concrete surfaces, rough cast, stucco, brickwork and so on, is now available under the trade name Hydramic.

Supplied in powder form, requiring only the addition of water, the paint can be applied by brush, spray or spatter, and, after setting, the surface becomes hard and, it is stated, has long-lasting qualities.

The surface to be treated should be kept moist during application and after the powder has been mixed to a fairly thick consistency, the paint must be used within one hour. The covering capacity varies according to the nature of the surface to which it is to be applied but, under average conditions, 1 lb. of powder will treat 1 sq. yd. approximately.

The product is supplied in five sizes of non-returnable containers, from 7 lb. to 112 lb., and is available in various colours. Delivery for this material is generally one week from receipt of order.

Full details of the product, including price, may be obtained from the manufacturer, Glazex Products Limited, Victoria Buildings, Victoria Road, Swansea.

Electric Mobile Compressors

A RANGE of electrically operated mobile compressors, designed to effect a reduction in operation noise, as well as a reduction of wear, appears of application, for example, to marshalling yards, running sheds, office accommodation, and similar situations where noise would constitute a source of irritation.

Reduction of noise is obtained by the use of electric motors driving the manufacturer's Power Vane type rotary compressors; maintenance costs of electric motors are small when compared with diesel units.

The rotary compressor consists basically of two elliptically shaped chambers mounted in line with the motor. Two rotors, mounted on a common shaft, are positioned eccentrically to the casing of the chambers and carry a number of sliding vanes, inserted radially in longitudinal slots in the rotor.

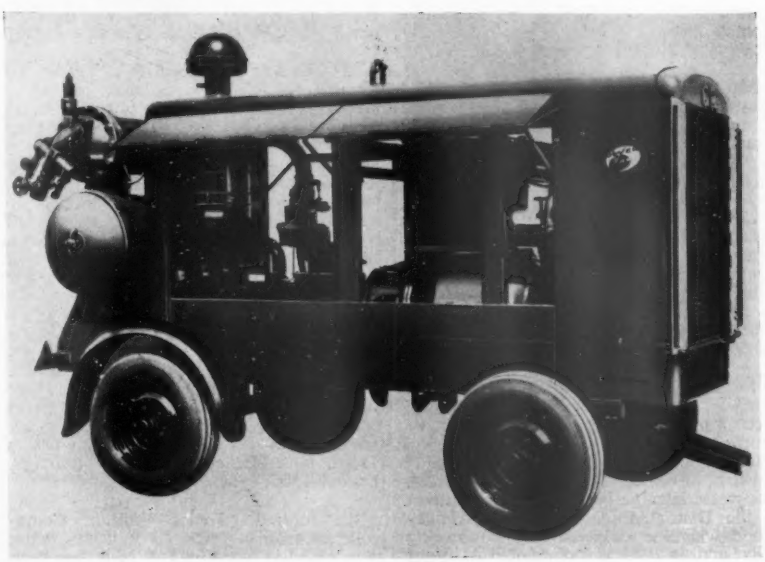
Oil flooding of the compressor provides lubrication, cooling and sealing of clearances. As cooling takes place at the moment when air temperatures would otherwise start to rise due to compression, air is delivered, it is stated, at least 100° F. cooler than would be the case with a two-stage piston type portable compressor of the same capacity.

The compressor units, for surface use, are powered by Brush and English Electric direct-coupled, squirrel cage motors fitted with star delta starters. Where flame-proof operation is required, the units can be supplied with Brush, English Electric, Metropolitan-Vickers and Morley flame-proof motors.

Because the units can run at lower speed than when diesel powered, the models 120RE, 175RE and 210RE are designed for service at 1,450 r.p.m. and deliver 100, 135 and 160 c.f.m. respectively, while the 365RE operates at 1,460 r.p.m. and delivers 300 c.f.m., pressures in each case being 100 lb. per sq. in. The largest unit in the range, the 600RE, delivers 510 c.f.m. at 1,480 r.p.m.

The units are normally trailer mounted; they may, however, be supplied as stationary units or may be skid mounted, and for specific duties they are also designed for pressures of up to 150 lb. per sq. in.

Details of the plants may be obtained from the manufacturer, Consolidated Pneumatic Tool Co. Ltd., 232, Dawes Road, London, S.W.6



Higher Fares on British Railways and London Transport

Rail and bus fares authorised by Transport Tribunal to operate from September 15

Changes in passenger fares on British Railways and London Transport which were approved by the Transport Tribunal at the beginning of August are to operate from September 15; this is in accordance with the undertaking by the B.T.C. not to apply them during the peak of the holiday season.

The alterations to be made are:—

British Railways

London Lines.—On the London, Tilbury, & Southend lines of the Eastern Region the ordinary single fare for two miles to be raised from 4d. to 5d.; the fares for three to eight miles are unchanged but ordinary single fares are to be increased for nine miles by 1d., 10-19 miles by 2d., 20-39 miles by 3d., 40-59 miles by 4d., 60 miles and over by 5d. Increases in day return fares will be double the increases in the single fares.

Early morning return fares increased by 1d. or 2d. up to nine miles; 3d. from 10-27 miles; gradually increasing to 1s. 8d. at 60 miles.

Monthly season tickets increased by 3s. 9d. for one mile, by minor adjustments for two, three, and four miles, rising by graduated steps to 9s. at 23 miles and over, with proportionate increases in weekly and longer period tickets.

Outside London Area.—Early morning return fares and season ticket rates raised by amounts broadly similar to the increases in the London area.

Second Class Fare 2d. a Mile

Last July the Commission stated that the question of raising the ordinary fare from 1·88d. a mile to 2d. a mile second class, with proportionate increases in first class fares, was under review. Authority to charge 2d. a mile has been held by the Commission since 1953. The charge is effective from September 15.

The Commission points out that the new second class fare of 2d. a mile compares with the 1d. a mile third class monthly return fare of 20 years ago. Taking all the new fares together, the average fare per passenger mile on British Railways, compared with before the war, will have risen by only 115 per cent, compared with an increase of 165 per cent in retail prices.

Miscellaneous Passenger Charges

Certain miscellaneous passenger charges, some of which have remained unaltered for many years, are also to be revised. These include sleeping berth charges, which will go up from September 15 by about 10 per cent. Seat reservations, which have been 1s. since 1914, will go up to 2s. as soon as practicable.

London Transport

Single Fares.—Threepenny minimum, no change; 4d. for journeys up to a mile and a half, no change; other 4d. fares increased to 5d.; the 6d., 8d., 10d., 1s., 1s. 2d., and 1s. 4d. fares, generally no change; 1s. 5d. increased by 1d.; 1s. 6d. to 2s. 8d. by 2d.; 2s. 9d. to 5s. 2d. by 3d.; 5s. 3d. to 7s. 8d. by 4d.; 7s. 9d. and over by 5d.

Early Morning.—Bus fares (single) increased by 1d. or 2d. Early morning return fares (Underground) increased by 1d. or 2d. for fares up to 2s. 1d., by 3d. up to 3s. 10d., and bigger increases on higher fares.

Underground Season Tickets.—Monthly rail season tickets increased by varying amounts rising to a maximum of 9s. at 23 miles. Weekly and longer period tickets will be increased proportionately.

The increases authorised (including London Transport) are expected to yield £6,000,000 a year; and the miscellaneous charges about £700,000.

Blackstone Introduces Twin-Bank Series of Engines

A range of diesel engines covering 800 to 1,500 b.h.p. with rail-traction applications developed by Blackstone & Co. Ltd., of Stamford, are of twin-bank design; the main feature is the basing of range on the two current series of engines produced by the maker with power outputs of up to 660 b.h.p. This has enabled some 80 per cent of all the working parts of the new range to be identical with these existing EV- and ER-series units.

The engine may be considered basically as two conventional vertical inline units mounted side-by-side, parallel with each other, and driving a single output shaft by means of a common gearbox.

Apart from rail traction, the range also has application to marine and industrial engineering spheres; advantages claimed for the design for the former field include compact design, good power/weight ratio, and easy servicing.

The twin-bank design will be produced in two basic sizes of 12- and 16-cylinder layouts, either turbocharged or normally aspirated. Bore and stroke are 8¾ in., and 11½ in. respectively. Because the design is based on existing units no trouble due to combustion or similar problems has been encountered.

The twin-bank engines are designated EV 12 and EV 16 for nominal crankshaft speeds up to 600 r.p.m., while crankshaft speeds over 600 r.p.m. are designated by ER 12 and ER 16. In all cases a suffix "S" indicates pressure charging. By way of example, normal maximum output of the EV 12 (normally aspirated) engine at 600 r.p.m. is 540 b.h.p., and that of the ERS 16 (turbocharged) at 750 r.p.m. is 1,320 b.h.p.; for rail traction application, however, a crankshaft speed of 800 r.p.m. is permitted, giving a traction rating output from the largest unit of 1,540 b.h.p.

Construction

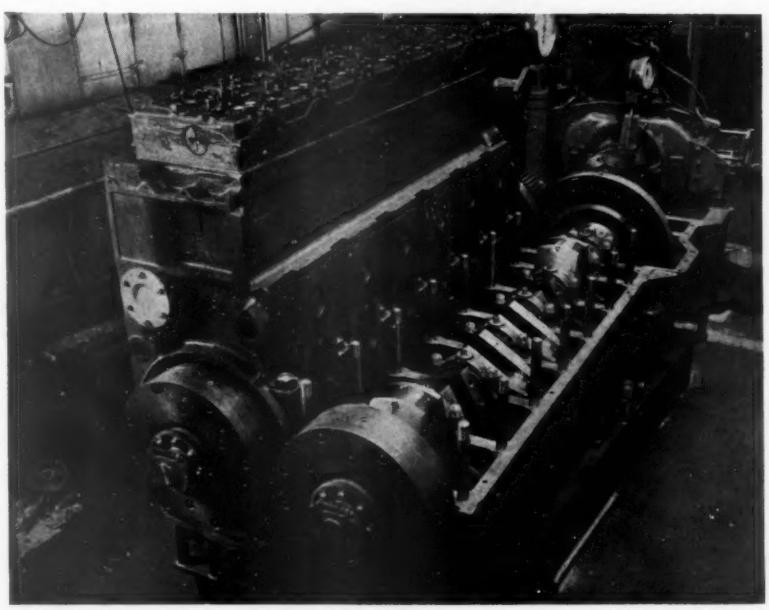
The two vertical banks of cylinders are bolted back-to-back to each other and also to the common engine base, which carries both crankshafts in steel-backed white-metal-lined bearing shells. Each bank has its own governor, running gear, oil and water pump, the common output drive being taken through a gearbox built-in to the flywheel end of the engine. For engines designed to run up to 600 r.p.m., pistons are of cast iron; for greater speeds, aluminium silicon alloy is employed.

Each crankshaft is fitted with a hydraulic damper at the forward (free) end. Between each flywheel and input of gear of the gearbox is fitted a Blackstone patent nodal damper coupling, which provides both flexibility to ensure smooth driving torque and to protect gear teeth, and viscous damping which, with the hydraulic dampers fitted to the crankshaft, eliminates unwanted torsional vibration.

Starting can be effected by compressed air or electric starting by means of a series winding on the generator when the unit is used in a diesel-electric transmission system.

In the event of failure, one bank can be isolated as a temporary measure by disconnecting the drive of the particular bank at the input coupling of the gearbox.

In the case of engines for rail traction duties, they will be installed in anti-vibration mountings; if weight saving is required, fabricated steel engine base and cylinder housings may be substituted for the standard cast iron components.



View of partly erected Blackstone twin-bank engine with one cylinder housing, complete with cylinder heads, in position

Radio Telephones in Tees-Side Marshalling Yard

Short wave radio telephone communication between control points and the diesel shunting locomotives

At Newport, North Eastern Region, there are two adjacent main yards known locally as No. 1 Up and No. 1 Down; both are hump yards.

Each yard is separately controlled by its own hump ground frame, and the new inter-communication between the ground frame control point and the locomotives operating in the Yard will speed up the work of marshalling freight trains. Previously, communication was by fixed signal, hand signal, or by word of mouth, and this frequently necessitated the locomotives having to proceed to the control point to receive instructions. The advantages are of particular value during foggy weather when poor visibility makes working to hand signals a matter of some difficulty.

The equipment in each yard operates on adjacent channels, 100 kcs. per sec. apart, and although the equipment on the locomotives can be used on either frequency, during operations the locomotive set is Yale-locked to prevent the driver communicating with or receiving messages from the pointsman in the yard other than that in which the locomotive is operating.

The equipment in each ground frame comprises a transmitter/receiver, re-entrant horn loudspeaker, microphone, and foot-operated send/receive switch.

Each locomotive is equipped with a mobile set consisting of a transmitter/receiver, an extension control unit with a hand micro-telephone and a re-entrant horn loudspeaker. The driver receives a call from the control point on the loudspeaker, but continues the conversation via his hand micro-telephone.

A special feature of the ground frame equipment is the provision of a foot-operated emergency stop switch which, when depressed, transmits a high-pitched warning note. The driver of the locomotive operating over the hump, on hearing this signal, stops his locomotive immediately and awaits instructions over the radio telephone.

The ground frame apparatus operates from a 250/260-V. 50-cycles per sec. supply and the apparatus on the locomotive embodies a rotary converter which enables the mobile set to be operated from the locomotive's 90-V. d.c. electricity supply, without having to use intermediate batteries.

All the radio telephone equipment has been supplied and installed by British Communications Corporation Limited, Wembley, under the general direction of Mr. A. F. Wigram, Signal Engineer, North Eastern Region.

Seventeenth International Railway Congress

The Seventeenth International Railway Congress will take place towards the end of September, 1958, in Madrid; the exact date has not been determined.

At the Sixteenth Congress, held in London, 11 questions were discussed; the number next year will be 10, two questions to be dealt with by each of the five sections. Two reporters will prepare on behalf of the International Railway Congress Association a report co-ordinating the replies to the questions concerned which have been sent in by a group of countries. The two groups may be classified very roughly as those of the railways in English-speaking countries, or those of railways which tend to follow, in general, British and those which follow Continental practice. This, however, is only a very approximate classification, as the former group includes, for the purposes of the Congress, America (North and South) and U.S.S.R. The groups of countries are shown respectively as B ("British") and C ("Continental") in the list below.

SECTION I: WAY AND WORKS

Question 1: Problems presented by the ageing of bridges and viaducts. Long-term effects of fatigue and corrosion in steel bridges and weathering of masonry. Rational methods of maintenance of bridges. Repair and strengthening

Reporters: (C) Dr.-Ing. G. Cividalli, Italian State Railways; (B) Herr F. Lemmerhold, German Federal Railway.

Question 2: Very long rails. Welding methods. Transport of long welded rails and necessary equipment for transporting, laying, fixing, ballast, tamping, and so on. Economic aspect of the question. Present tendencies

Reporters: (C) Senor A. Crespo Mocorrea, Spanish National Railways; (B) Mr. F. Jackson, Assistant Chief Civil Engineer (Maintenance), South African Railways & Harbours.

SECTION II: LOCOMOTIVES AND ROLLING STOCK

Question 3: Design and improvement of railcars and multiple-unit diesel trains

Reporters: (C) Senhor Antonio da Silva Canavezes, Jnr., Portuguese Railways; (B) Dr.-Ing. G.-A. Gaebler, German Federal Railway.

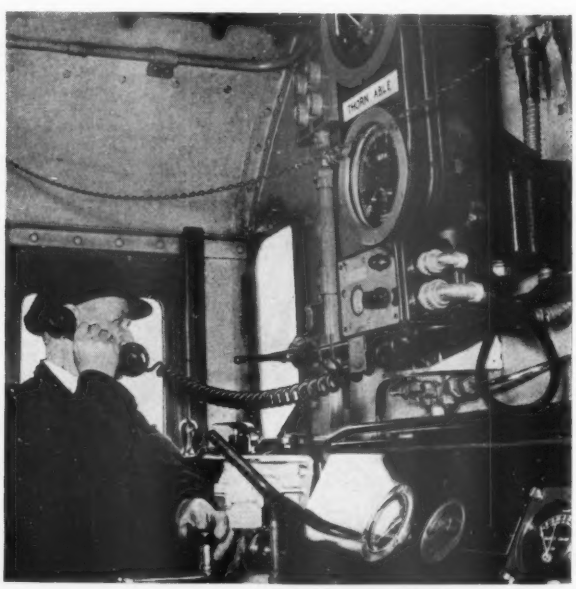
Question 4: Comparative study of the periodical maintenance and repair of electric locomotives.

Reporters: (C) Monsieur M. Viani, R.E.N.F.E.; (B) Mr. K. J. Cook, Chief Mechanical & Electrical Engineer, Eastern and North Eastern Regions, British Railways.

SECTION III: WORKING

Question 5: (*a*) Handling facilities in goods depots for consignments in less than carloads, containers. General arrangement of depots. Liaison between the staff of the depot and the delivery services; (*b*) railway problems regarding the introduction of general palletisation

Ground frame control box showing transmitter/receiver and foot-operated switch



Driver using two-way radio telephone fitted in cab of locomotive (call sign, "Thorn Able")

Reporters: (C) Monsieur Marchand, French National Railways; (B) Mr. Dorjee, General Manager of the N.V. Van Gend & Loos, Utrecht.

Question 6: When changing over to electric and diesel traction for passenger train services, research into principles which may lead to a rational and efficient organisation

Reporters: (C) Monsieur R. J. L. O. Carlier, Belgian National Railways; (B) Mr. G. F. Fiennes, Traffic Manager (Great Northern), British Railways, Eastern Region.

SECTION IV: GENERAL

Question 7: Advantage of the use of high-speed electronic apparatus for certain administrative work such as: (1) making out of pay slips, (2) traffic and stores accounts, (3) checking movement of empty and loaded wagons, thereby improving the distribution of rolling stock, and (4) compiling more rapidly already existing statistics, with the possibility of preparing new ones

Reporters: (C) Monsieur B. H. de Fontgalland, French National Railways; (B) Mr. Sten Ubbe, Swedish State Railways.

Question 8: Financing and conserving railway properties and assets; study and comparison for limited companies, partially State-owned companies and State Railways, of the financial means used for the normal renewal of installations and rolling stock; and forms of amortisation and renewal

Reporters: Monsieur W. Keller, Swiss Federal Railways; (B) Ministerialrat Dipl.-Ing. V. Felder, Austrian Federal Railway.

SECTION V:
LIGHT AND COLONIAL RAILWAYS

Question 9: Experience obtained concerning the undulatory wear of rails

Reporters: (C) Senor L. Prieto Delgado, R.E.N.F.E.; (B) Mr. N. C. Vogan, Chief Civil Engineer, New South Wales Government Railways.

Question 10: In view of the development of light railways, what are the means to be adopted in order to reduce the operating costs of these railways and what are the resulting basic amendments?

Reporters: (C) Prof. Dr. Ing. E. Stagni, Italian State Railways; (B) Mr. S. L. Kumar, Director Research, Railway Testing & Research Centre, Ministry of Railways, Lucknow, India.

WESTERN REGION EXCURSION FOR PHOTOGRAPHERS.—The Western Region of British Railways is to run a "Photographers' Special" cafeteria excursion on September 15 at 8.55 a.m. from Paddington to Bath and Cheddar. Prizes are offered of cameras and a flash accessory to the three best photographs taken at any time during the trip. Only photographs submitted by amateurs will be considered; and provided that they are taken by the competitors, it does not matter who completes the processing. Winning prints will be chosen by a panel of judges selected by the Photographic Dealers' Association. The railway fare to Bath and back from Paddington or Ealing Broadway is 14s. 6d. (9s. 9d. from Reading). For those who wish to include the road tour from Bath to Cheddar by motorcoach, the Paddington or Ealing fare is increased to 22s. 6d. (17s. 9d. from Reading).

Contracts and Tenders

Overhead line contract let for Glasgow suburban electrification

The British Transport Commission has announced that the work of erecting approximately 200 single track miles of overhead line equipment for stage 1 of the Glasgow suburban electrification on the 50-cycle a.c. system, will be carried out by Pirelli General Cable Works Limited.

The electrification comprises the lines from Airdrie to Helensburgh and Balloch, and from Glasgow Central to Kirkhill and Neilston High including the Cathcart Circle; together with the lines from Motherwell to Kirkhill and Crossmyloof to Clarkston (part of stage 2 required for feeding stage 1). Installation work on the site will commence early in the new year.

The British Transport Commission has placed orders for 600 20-ton bulk-cement wagons as follows:—

300 vehicles from the Central Wagon Co. Ltd., Wigan; 200 from the Gloucester Carriage & Wagon Co. Ltd., Gloucester, and 100 from the Butterley Co. Ltd., Codner Park, near Nottingham.

An order has also been placed with Park Royal Vehicles Limited, London, for 50 light alloy "B" type rail containers for use experimentally under general traffic conditions. They weigh 15 cwt. less than the existing wooden type containers, but are designed to carry a 5-ton instead of a 4-ton load.

The new wagons and containers are to be allocated for use in all regions of British Railways.

Hurst Nelson & Co. Ltd. has received an order for 20 bogie fuel-oil tank wagons for the Sudan.

A contract for the construction of a railway administrative block on the Cape Town foreshore valued at £1,251,400 has been awarded to W. Harper Limited, by the South African Railways & Harbours.

British Railways, Eastern Region, have placed the following contracts:

Donald Humberstone & Co. Ltd., North Somercotes, Louth, Lincs: cleaning and painting of station buildings, signals, signalbox, point rodding, bond warehouse, grain warehouse, workshops, offices motive power depot, and station footbridges, at Lincoln Central Station

R. Ridd & Son (Contractors) Ltd., Hornchurch, Essex: cleaning and painting of ironwork and steelwork to overhead line structures, between Liverpool Street and Shenfield

F. Hodgson & Son Ltd., Chelmsford: construction of overhead line maintenance depot at Pitsea.

British Railways, North Eastern Region, have placed the following contracts:

English Electric Co. Ltd., Liverpool: m.v. switchboard, York Toft Green

Dowsett Engineering Construction Limited, Gateshead-on-Tyne: new high dolphin, Dunston East Staiths

Conveyancer Fork Trucks Limited, Worcester: "Conveyancer" fork lift truck, Darlington Locomotive Works

A. Robinson (Contractors) Limited, Middlesbrough: 70-ft. turntable pit, Skinningrove

Ward Bros. (Sherburn) Limited, Malton: fabrication and erection of steelwork, Shaftholme signalbox.

The Special Register Information Service, Export Services Branch, Board of Trade, reports that the Development Board and Ministry of Development of the Government of Iraq invites tenders for the supply of one shunting locomotive. The documents for tender including general information, general conditions, specifications, and models of schedules of rates and prices may be inspected at the office of the Directorate General of Contracts, Ministry of Development, Development Board, Baghdad.

The closing date is September 21, 1957. A copy of the tender documents is available for loan to United Kingdom firms on application (Lacon House, Theobalds Road, W.C.1). A photo-copy set can be purchased from the Branch for 7s. Cheques and postal orders should be made payable to the Principal Accountant, Board of Trade. Firms wishing to collect photo-copy sets of tender documents are advised to notify us in advance of their requirements. The reference ESB/20774/57 should be quoted in any correspondence with the Branch.

The Special Register Information Service, Export Services Branch, Board of Trade, has received a call from Formosa for T-rails and black steel pipe as follows:—

25 M/T. standard light T-rails of 30 lbs. per yd.

25 M/T. standard light T-rails of 20 lbs. per yd.

60 M/T. standard light T-rails of 16 lbs. per yd.

3,300 ft. black steel pipe AS. weight—line pipe of size 6 in.

1,650 ft. black steel pipe AS. weight—line pipe of size 4 in.

3,300 ft. black steel pipe AS. weight for butt welded pipe of size 3 in.

3,300 ft. black steel pipe AS. weight for butt welded pipe of size 2 in.

3,300 ft. black steel pipe AS. weight for butt welded pipe of size 1 in.

The issuing authority and address to which bids should be sent is the Central Trust of China, Purchasing Department, 68, Yen Ping Nan Road, Taipei, Taiwan (Formosa). The tender No. is 84-21-007-9-70381. This purchase will be financed by the International Cooperation Administration (I.C.A.). The closing date is September 30, 1957. United Kingdom firms who wish to tender should if possible obtain the necessary documents direct from the Central Trust of China. A copy of the specifications and conditions of tendering is available for inspection in Room 735 of the Branch (Lacon House, Theobalds Road, W.C.1). An additional copy is available for loan on application. Photo-copy sets of the documents can be obtained at the cost of 12s. from the Branch. Cheques and postal orders should be made payable to the Principal Accountant, Board of Trade. Bids must not be submitted on these photo-copies. The reference ESB/20935/57/I.C.A. should be quoted in any correspondence with the Branch.

The International Co-operation Administration is the organisation through which the U.S.A. provides financial aid to underdeveloped countries.

First Scooter Excursion Train

A special train, including a cafeteria car, for riders of scooters accompanying their machines, was run from Paddington to Shrewsbury and back, leaving at 12.30 a.m., arriving Shrewsbury at 6.3 a.m. last Sunday, September 1, returning from Shrewsbury at 7.25 p.m. and arriving Paddington at 11.15.

With over 150,000 scooters in this country, the Western Region of British Railways believes that many riders will welcome the opportunity of being transported, at an attractive all-in charge, to a distant point so as to spend a whole day exploring a new area. Twelve hours scooter riding into North Wales were made possible by this excursion, with Snowdonia, the Cambrian Coast, Bala Lake, and Llangollen, all within riding distance.

Specially-equipped vans were included in the train to carry 100 scooters, each of which was secured to prevent movement, and accommodation was provided for 200 passengers, as many of the riders had companions. Scooters could be loaded with full tanks of petrol.

Although the excursion was being arranged in conjunction with the British Lambretta Owners' Association, owners of any make of scooter could join the trip, provided they booked in advance.

The fare for a rider and machine was 40s., and for rider, pillion passenger, and machine 60s.

Notes and News

Model of Beyer-Garratt Locomotive Presented to Sir Roy Welensky.—The Prime Minister of the Federation of Rhodesia & Nyasaland, Sir Roy Welensky, was recently presented by Beyer Peacock & Co. Ltd. with a model of one of the "20th" class Beyer-Garratt locomotives, of which 60 have been ordered by the Rhodesia Railways. The model, which despite the small scale contains much detail, was handed over to the Prime Minister in Salisbury by Mr. M. A. Crane, Technical Sales Manager of Beyer Peacock & Co. Ltd. It will be recollected that Sir Roy Welensky was at one time engaged in locomotive operation, a subject in which he still retains the greatest interest.

Jamaica Accident.—A message of sympathy has been sent to the Acting Governor, Jamaica, from the Queen. The message read: "I was much distressed to learn of the loss of life in the railway accident in Jamaica. Please convey my sincere sympathy to the next of kin of those killed." Among other messages was one to the General Manager of the Jamaica Government Railway from Sir Brian Robertson, Chairman, British Transport Commission, expressing the sincerest condolences of the Commission.

North British Locomotive Co. Ltd. at the Engineering, Marine, Welding, & Nuclear Energy Exhibition.—Exhibits by the North British Locomotive Co. Ltd. at the Engineering, Marine, Welding, & Nuclear Energy Exhibition, being held at Olympia, London, until September 12, include a L12v. 18/21 supercharged V12 diesel engine, capable of delivering 1,100 b.h.p. operating on the 12-hr. rating at 1,500 r.p.m. The company is building a number of high-speed main-line locomotives, powered with this type of engine, for British Railways, with Voith-North British hydraulic transmission units interposed between engine and final gearing and the road wheels.

Viaduct to be Rebuilt as Cellular Embankment.—The Elton Viaduct, between Crewe and Sandbach in the London Midland Region of British Railways, has had to be raised on several occasions because of subsidence caused by brine pumping. To overcome this difficulty a form of cellular construction through the bridge opening is to be provided, which will allow unlimited subsidence without the need to heighten and strengthen the abutments by unpredictable amounts. The cellular construction will consist of layers of 5-ft. o.d. reinforced concrete pipes laid through the bridge opening, the length of the layers being tapered towards the top to conform to the profile of the existing embankments. The bottom layer will rest on a concrete raft and the pipes will be concreted and reinforced to form a single honeycomb unit. Elton Viaduct consists in effect of two separate bridges with seven brick arches under the slow lines and four under the fast.

Mr. M. A. Crane presenting to Sir Roy Welensky, on behalf of Beyer, Peacock & Co. Ltd., the model of a Rhodesia Railways "20th" class Beyer-Garratt locomotive

North British Dividend Deferred.—Consideration of a dividend payment on the 5 per cent cumulative preference stock of the North British Locomotive Co. Ltd. is being deferred until the results for 1957 become available. The dividend has been paid to March 31, 1956.

Woman Unhurt After Fall Under Train.—A woman who fell beneath a train at Lower Edmonton station, Eastern Region, on September 2, suffered only minor bruises and shock. It is reported that her head was struck by the locomotive as it was drawing into the station and she fell unconscious onto the track, the train passing over her.

Head Wrightson French Agreement.—Head Wrightson & Co. Ltd. has announced that an agreement has been made with Compagnie de Fives-Lille, S.A., of Paris and Lille, covering the manufacture and sale in France of the full range of iron-making equipment designed and manufactured by Head Wrightson & Co. Ltd., in conjunction with Arthur G. McKee & Co. Ltd., of Cleveland, U.S.A.

Institution of Locomotive Engineers General Meeting.—Mr. E. S. Cox will give the Presidential address at the general meeting of the Institution of Locomotive Engineers to be held at the Institution of Mechanical Engineers, 1, Birdcage Walk, London, S.W.1, on September 25, at 5.30 p.m. Before delivery of the address, the awards for papers read during the 1956-57 session will be presented by Mr. J. F. B. Vidal, the retiring President.

Shell Diesel Lubrication Developments at Engineering Exhibition.—The story of the activity of Shell-Mex & B.P. Limited in the development of special lubricants for diesel engines and nuclear power plants is given at the company's stand at the current Engineering, Marine, Welding & Nuclear Energy Exhibition at Olympia, London, which closes on September 12. Coloured flowing diagrams demonstrate the development of specialised oils from the early straight oils right up to modern solvent extracted additive type diesel engine lubricants.

Thermotank Limited New London Office.—Thermotank Limited has moved to larger premises at Marine Engineers' Memorial Building, 18 London Street, London, E.C.3. The new telephone number is Royal 7343-4. The telephone number of the offices and works of the Thermotank Group at West Drayton, Middlesex, has been changed to West Drayton 3685-9. Known as Colneside Works, the premises are the southern area offices and works of Thermotank Limited; the main works of Lumenated Ceilings Limited, and the registered offices and works of Sound Control Limited.

English Electric Exhibits at Olympia.—The English Electric Group of companies has six stands at the current Engineering, Marine, Welding & Nuclear Energy Exhibition, at Olympia, London, open until September 12. These include the main English Electric Co. Ltd. stand, where the Diesel Division is represented, in part, by a 4SRKT, 500-h.p., diesel-

electric traction unit, as are also the Industrial Motor Division and the Fractional Horse Power Division, examples of the various ranges of motors produced by each, being on show. On the stand of D. Napier & Son Ltd., both the Deltic diesel engine and some of the turbo-chargers manufactured by the company are featured. Other constituents of the Group which have stands at the exhibition include the Welding Equipment and Control & Electronics Divisions.

C.N.R. Train Looted by Bandits.—Three masked men are reported to have held up the crew of the mail van in a Canadian National Railways train, locked the crew in the washroom, and left the train at the next stop after rifling the mails.

Locomotive Named after Composer.—To celebrate the Elgar centenary, the Western Region of British Railways has renamed its "Castle" class locomotive No. 7005 (formerly *Lamphey Castle*) *Sir Edward Elgar*. The locomotive is working from Worcester motive power depot, in the heart of the Elgar country.

Improvements at Currock Wagon Shop, Carlisle.—Work has begun on a new staff amenities building at Carlisle (Currock) Carriage & Wagon Shop. There is to be a large messroom, a locker room, a drying room, a wash room, and a cycle store. Other parts of the building will contain the offices of the district foremen and the clerks. Central heating is to be installed in the new building, which will also supply heat to the workshops.

New Telephone Exchange for Southampton Docks.—A new, fully-automatic telephone exchange built at Southampton Docks will replace the existing one installed in 1922. It will be housed on the upper floor of a new two-storey building to be built on a vacant site near the Chief Dock Manager's office. Six hundred automatic extension lines will be provided, and the apparatus will be capable of taking a further 200 in the future should the need arise.

Rebuilt Oldham Mumps Station Opened.—The rebuilt station at Oldham Mumps, London Midland Region, the entrance buildings of which have been entirely reconstructed, was opened recently by the Mayor of Oldham. The new station entrance buildings comprise a booking hall, enquiry office, parcels and clerks' offices, and messing facilities. The structure is a single-storey reinforced concrete frame with brick and glass infilling, a flat roof and an awning projecting across its entire width. Roof lighting is obtained by circular glass dome lights, and the internal finishes include Terrazzo flooring to the booking hall with mosaic panels to the ticket window front. The ticket offices are fitted with Hygiaphone windows and the parcels office has four loading bays closed by roller shutters.

Rebuilding at Leighton Buzzard.—Rebuilding of the station front and booking hall at Leighton Buzzard station has been started by the London Midland Region. The platform buildings have already been rebuilt and redecorated and repairs made to the subway. A new concrete awning over the platform has been erected. Improvements to the station front and booking will provide a larger combined booking and waiting hall and an improved parcels office and loading bay, central heating, and electric lighting.

Whitchurch-Chester Line to be Closed for Passenger Traffic.—The London Midland Region has announced that the passenger train service between Whitchurch and Chester will be permanently withdrawn from Monday, September 16, and passengers for Grindley Brook, Malpas, Broxton and Tattenhall should book to Whitchurch, Waverton or Chester according to direction of travel and thence by Crosville Motor Services. Parcels and passenger train merchandise for Tattenhall will be dealt with at Tattenhall Road and the existing arrangements will continue in respect of Broxton and Malpas, which also remain open for freight train traffic.

Southern Region Winter Timetables.—In the article on page 235 of our issue of August 30, the words "at 57 min. past each hr." in the fourth line of the penultimate paragraph should read "at 49 min. past each hr." The "57" applies on Sundays only. The following sentence, starting "Similar services . . . " may not be clear. The two previous services mentioned in the article are Portsmouth-Southampton Central and Winchester-Alton. The former will be operated by diesel-electric trains from September 16, as will the Southampton-Winchester service. The Alton regular-interval service will not be implemented until November 4, steam services as at present running until then. The article states also that all the hourly services mentioned will also run on Sundays except the local service, Winchester-Southampton Terminus. In point of fact the Portsmouth-Andover Junction service will run between Portsmouth and Romsey—certain trains only will run to Andover Junction.

Explosion in Industrial Locomotive.—Five men were badly scalded and burned when there was an explosion in an industrial steam locomotive at the East Moors Works, Cardiff, of Guest Keen Iron & Steel Co. Ltd. on August 28. The locomotive had been derailed and turned on its side after a collision with another works locomotive and the men were drawing the fire as a safety precaution when the explosion occurred.

Seat Reservations from Intermediate L.M.R. Stations.—As from September 16 the London Midland Region has arranged individual seat reservations, first and second class, from many intermediate stations in certain express trains. Reservations, which must be in advance, can be made from Watford to Manchester, Liverpool, Birmingham and Wolverhampton; from Luton to Manchester Central; from Chester to London; from Bolton to Glasgow and Heysham; and from many stations in Lancashire to London.

Schoolboys' Study Courses in N.E. Region.—Two parties of public and grammar schoolboys are taking a short study course this week in the North Eastern Region of British Railways, and are seeing for themselves the many careers now open to them on British Railways. One of the parties, consisting of nine, with Darlington as their base, is visiting railway installations at Darlington, Shildon, York, and South Gosforth, and studying mechanical, electrical, and carriage and wagon engineering. The other party of 12 boys is based at Whitley Bay and is studying the working of the Chief Traffic Manager's department, covering commercial and operating activities: this party is visiting stations, marshalling yards,

General view of new frontage of Oldham Mumps Station

Booking hall, showing Hygiaphone windows

signalboxes, and depots in the Newcastle area. Besides seeing practical demonstrations the boys are also receiving instruction through talks and films. The visits have been arranged in conjunction with the Public Schools Appointments Bureau and the Central Youth Employment Executive of the Ministry of Labour.

Expandite Limited Forms Irish Subsidiary.—Expandite Limited, Chase Road, London, N.W.10, manufacturers of sealing compounds and jointing materials, announce the formation of a subsidiary company, Expandite (Ireland) Limited, Greenhills Road, Walkinstown, Dublin. The telephone number is 501512. The first board meeting of the new company was held on August 14.

Leather Satchels for Diesel Drivers.—The accompanying illustration shows a British Railways diesel train driver carrying one

Leather satchel for controls as issued to British Railways diesel drivers

of the new leather satchels with which drivers have now been issued. The satchels contain the control handle, reversing lever, and various keys, and are a neat and handy method of keeping controls safely together. They are being made at the British Railways Sheet Shops at St. Helens Junction.

Production of Iron Castings.—The Iron & Steel Board states that the production of iron castings in the second quarter of 1957 was 944,460 tons. Production in the second quarter of last year was 1,022,040 tons.

Opposition to Closure of G.N.R.(I.) Lines.—Many objections have been lodged with the Government of the Republic of Ireland against the proposal to close the passenger services on the Great Northern Railway branch lines from Dundalk to Clones, from Glaslough to Cavan via Monaghan and Clones, and from Ballyhaise to Belturbet. A few weeks ago the G.N.R. Board gave notice of intention to seek authority to close the lines to passenger traffic, and announced that alternative road services corresponding approximately to the train services to be terminated, would be provided. The proposal to end the passenger services on these branch lines follows the decision of the Government of Northern Ireland to close down three G.N.R. secondary lines, linking Omagh - Enniskillen - Newtownbutler, Bundoran Junction - Belleek, and Portadown - Armagh - Tynan, which form part of the cross-border rail services.

Silentbloc Limited Final Payment.—A final payment of 12½ per cent is recommended by the board of Silentbloc Limited, maintaining the dividend at 25 per cent. For the year ended May 31 last, group net profits fell to £104,900 against £148,519 for the previous year. Asset replacement reserve receives £47,750 (£45,000) but the dividend equalisation reserve, allotted £50,000 last year, receives nothing. The sum of £39,463 (£29,750) is carried forward.

Wilful Damage to Signalling Apparatus.—Two R.A.F. corporals pleaded guilty at Chippenham recently to trespassing on the railway and doing wilful damage. It was stated in court that after damaging the station building at Christian Malford Halt, near Chippenham in the Western Region, they removed three batteries concerned with the signalling apparatus from their boxes and smashed them. The signals were out of action for nearly five hours. One of the men also pulled up two mileposts. The men were each fined a total of £27 and were ordered to pay £9 4s. 1d. costs.

Pre-fabricated Channel Tunnel Suggested.—Talks have been held in Paris recently between parties interested in the Channel Tunnel scheme. According to Mr. Lassen-Nielson, of the Danish firm of Christiani & Nielson, which has been consulted by a group willing to finance the building of the tunnel, consideration is being given to the construction of a pre-fabricated tube which would lie on the bed of the Channel. No decision has yet been reached on whether this type of tunnel, which was suggested some time ago for the Firth of Forth road crossing, is to be adopted or whether a tunnel will be driven through the subsoil.

Thermotank New Division.—An International Products Division, with worldwide representation, has been formed by Thermotank Limited, of Helen Street, Glasgow, to deal with the sales and distribution of various products concerned with air conditioning, heating, and ventilating; the products handled by the new organisation will not be confined only to those manufactured by the parent company, but will include eventually items produced by firms overseas. Branch offices have been opened at all the overseas offices of Thermotank Limited, and one of the first effects will be the availability throughout the world of all Thermotank punkah louvres and air distributors.

Highgate Station Escalator.—The escalator which London Transport has installed at Highgate Station, to carry passengers upwards from the booking hall to Archway Road, was brought into service recently. Highgate station lies under a cutting below Archway Road and the escalator, 153 ft. long and with a vertical rise of 66 ft., saves passengers the long and steep climb hitherto made by pathway or steps. An unusual feature is that it is built partly below and partly above ground level. The section of shaft above ground is carried on a steel framework supported on concrete foundations on the side of the cutting. At the head of the escalator are turnstiles to permit exit only. To reduce running and maintenance costs, a light beam speed control device is fitted, permitting the escalator to run at reduced speed when carrying no passengers. As protection against water seepage and consequent ceiling discoloration, the escalator shaft is fitted with a false ceiling of lightweight, non-corrodable, waterproof plastic sheeting on a plastic frame affixed to the roof, with drainage channels behind the advertisement panels on the sides of the shaft.

Pilgrim Train Derailed in France.—A train bringing back some 650 young British pilgrims from a rally in Rome was derailed near St. Dizier, in eastern France, on August 28. It is reported that the locomotive, tender, and eight coaches left the rails after a coupling rod on the locomotive had broken. Of the 17 passengers taken to hospital in St. Dizier, only two were detained, one with cuts and the other suffering from shock. Both railway lines were blocked but after a delay of some 5 hrs. the passengers continued their journey by special train.

Waiting Room Modernisation at Liverpool Street.—The Eastern Region programme for waiting room modernisation is making good progress. The latest rooms to be re-equipped are two ladies waiting rooms at Liverpool Street Station. The main decorative feature of the West Side waiting room is a tile mural on the wall facing the door. Paul Hamilton was the designer. Another feature of this waiting room is the ceiling which slopes towards the mural and has an undulating saw tooth section faced with wax-polished beech plywood. The shape was governed by a desire to integrate the irregular levels of the old ceiling. Both the waiting rooms are furnished with the new Eastern Region standard furniture. The modernised waiting rooms and toilets were designed by the Regional Architect, Mr. H. H. Powell, under the general direction of Mr. A. K. Terris, Chief Civil Engineer, Eastern Region. Yeomans & Partners Limited were the main contractors.

Hackbridge & Hewittic Meeting.—At the annual meeting in London on August 8 of the Hackbridge & Hewittic Electric Co. Ltd., Mr. Anthony M. Browne, Chairman and Managing Director, presided. In his circulated statement he stated that although the output of the company's products had been maintained at about the same figure as each of the two previous years, the trading surplus for the year ended March 31, 1957, amounted to £439,663, against £534,079 for the previous year. A contract for rectifiers for the frequency changeover programme of the Southern Region of British Railways, started in 1952, was completed during the year. British Railways had since placed a contract for similar plant for extension to the Southern Region network entailing 31 new sub-stations with a total capacity of 80,000 kW. A new type of mercury arc unit, of such size and construction as to be suitable for mounting on locomotives or railway motor-coaches and, therefore, suitable for alternating current systems of railway electrification is being developed and a development section has been set up in connection with alternative forms of rectifier plant, such as the selenium type of

dry plate rectifier, and germanium and silicon junctions for the same purpose. The report and accounts were adopted.

New Station at Scale Hall.—The accompanying illustration shows the recently opened station at Scale Hall, the first entirely new station to be built by the London Midland Region since the war. It is situated on the Lancaster-Morecambe-Heysham electric line, and has been built to serve a new residential area with a service of fast electric trains to Morecambe and Lancaster.

De La Rue Factory Extension.—An extension scheme costing some £1,000,000 is to be undertaken during the next few years by Thomas De La Rue & Co. Ltd. in connection with the Tynemouth factory of its Plastics Division. Planning approval has been obtained for an extra 200,000 sq. ft. of factory space, doubling the boiler house accommodation, and the provision of a new canteen, stores, and offices. The first stage of the scheme is expected to start before the end of the year.

Brush Group Exports.—Since launching an intensive overseas sales drive earlier this year, Brush Group Limited foreign orders have exceeded £6½ million. These orders have come from countries including Canada, India, Venezuela, Pakistan, Iran, Malaya, Liberia, Poland, and Ghana. On August 23 the group announced that it had beaten American, German, Italian, French, Dutch, and Japanese competition to obtain a £1¼ million order from the Argentine for rural generating plant.

Hougham Station to be Closed.—The Eastern Region of British Railways announces that on and from September 16, 1957, Hougham Station will be completely closed and the passenger train service withdrawn from Claypole station. Passengers for Hougham will be catered for at Grantham and Newark stations and by the omnibus services operating in the area. A collection and delivery service for parcels and goods sundries traffic will be available on Mondays, Wednesdays, and Fridays as hitherto.

Road Casualties in July.—Road casualty figures for July published by the Ministry of Transport & Civil Aviation show that 512 people were killed and 6,151 seriously injured. Compared with July, 1956, deaths increased by 57 and the seriously injured by 281. There were 21,438 cases of slight injury, an increase of 1,668 making a total for all casualties of 28,101. The Road Research Laboratory estimate that motor traffic on trunk and classified roads was 3 per cent heavier than in July of last year.

Powell Duffryn Limited Results.—The directors of Powell Duffryn Limited announce that consolidated trading profits, including income from investments and interest receivable for the year ended March 31, 1957, after deducting interest on debenture stock, directors' remuneration, and profits attributable to outside shareholders, amount to £2,199,237 compared with £1,978,196 in the previous year, to this has been added £15,594, being the final amount accrued in respect of interim income under the Coal Industry Nationalisation Act (£337,922, mainly for previous years). Depreciation, already deducted, was £753,672 (£605,814). Taxation requires £1,176,398 (£1,245,886), leaving consolidated net profit for the year at £1,038,433 (£1,070,232) to which has been added a transfer from taxation reserve of £178,000 (nil) bringing the total consolidated net profit up to £1,216,433 (£1,070,232). A final dividend of 10 per cent is recommended, making, with the interim dividend of 6 per cent, 16 per cent for the year.

New station at Scale Hall, on Lancaster-Morecambe-Heysham electrified line

Craven Bros. (Manchester) Ltd. Dividend.—The interim ordinary dividend of Craven Bros. (Manchester) Ltd. for 1957 is 2½ per cent compared with 5 per cent for the previous year. The final dividend for 1956 was 5 per cent compared with 12½ per cent for 1955.

Wickman Limited Successful Year.—In his circulated statement, Sir Stanley Rawson, Chairman of Wickman Limited, states that the company has had a successful year. Turnover in the year ended March 31 last was higher than in 1955-56 but profit margins were less because increased wages and materials costs were not reflected in selling prices. Higher selling expenses were incurred because of intensified effort in export markets. The volume of orders in hand ensures good prospects for the current year. After depreciation of £233,656 (£213,191) group trading profits were £1,112,001 (£1,228,625). An ordinary dividend of 13 per cent, tax-free, is proposed on capital increased to £1,600,000 by the issue of 350,000 ordinary shares of £1 each to John Brown & Co. Ltd., holders of all the ordinary shares.

Montreal Locomotive Works Results.—In a quarterly report Montreal Locomotive Works Limited has reported a net income of $871,000, or $1.24 per share, for the six-month period ended June 30, 1957, a 20 per cent increase over earnings for the same period of 1956. Net income for the second quarter this year was $480,000, or 68 cents per share, an increase of 23 per cent over last year. In the report, Mr. P. T. Egbert, Chairman, and Mr. W. G. Miller, President, point out that, "while locomotive shipments are well above those of 1956, our billings during the first half of 1957 for thermal, industrial and service products have increased 27 per cent over those for the first half of 1956." High levels of output, it is stated, will be maintained throughout 1957 for these fields and also for diesel locomotives for Canadian railways. The company shipped the last of 25 diesel units to the Argentine State Railways in June.

Specialist Vehicle for British Road Services

One of the new Shelvoke & Drewry 18-cu. yd. refuse collectors being operated on contract by B.R.S. (Contracts) Limited for the Clutton Rural District Council

OFFICIAL NOTICES

REQUIRED by British Railway Company operating Chile: (1) DISTRICT (CIVIL) ENGINEER, (2) ASSISTANT RUNNING SUPERINTENDENT. Sterling salary, allowances, retirement benefits, free quarters, passages, home leave, etc. Write to Box No. 1125, c/o Charles Barker & Sons Ltd., Gateway House, London, E.C.4.

ASSISTANT ENGINEER (MECHANICAL) required for their London Office by the Crown Agents for Oversea Governments and Administrations for appointment normally to pensionable establishment on probation for two years. Salary scale £805 by £25 to £855 by £30 to £1,005 by £40 to £1,165 by £45 to £1,210 by £40 to £1,250. The £805 minimum is linked to entry at age 25 and is subject to increase at rate of one increment for each year above that age up to 34. Fully qualified officers at least 27 years old may be eligible for special increase of £75 after two years' service. Prospect of promotion. Candidates should have passed qualifying examination A.M.I. Mech.E. or equivalent examination and have served apprenticeship or pupilage in the locomotive works of either British Railways or a locomotive manufacturer. Subsequent Drawing Office experience in the design of locomotives and/or diesel engines and/or cranes is essential, coupled with a sound knowledge of modern workshop practice. Ability to write concisely will be an advantage since duties include preparation of contract specifications and technical correspondence as well as design calculations and examination and approval of drawings. Write to the Crown Agents 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2A/42419/RA.

THE Nigerian Railway Corporation invites applications for the following posts: (*a*) TRAFFIC OFFICER. Salary £800 by £50 to £1,600 p.a., plus £300 p.a. Overseas Pay. Qualifications: Candidates must have a thorough knowledge of and considerable experience in all branches of Railway Traffic and Commercial work, including Single Line Electric Train Staff working. They must have a practical knowledge of railway accounts, have administrative ability and be capable of examining staff in Block Telegraph Regulations. (*b*) TELECOMMUNICATION ASSISTANT. Salary £700 by £50 to £1,200 p.a., plus £300 p.a. Overseas Pay. Qualifications: Candidates must have a thorough knowledge of the operation of equipment used for communication purposes on a Railway system, the regulations appertaining to Telecommunication working, and a technical knowledge of modern High Frequency Radio Transmitters and Receivers, and telegraph circuits. They must be in possession of a Postmaster-General Grade 1 certificate in Wireless Telegraphy or recognised equivalent. Both appointments may be on pensionable terms, or on contract with 20 per cent. gratuity per annum of total pay. Tours: 15 months followed by 15 weeks' leave in U.K. on full pay. Allowances: In addition, there are attractive allowances. Send postcard mentioning this paper for further particulars and application form to: The London Representative, Nigerian Railway Corporation, 11, Manchester Square, London, W.1.

RHODESIA RAILWAYS. Vacancies for ASSISTANT MECHANICAL ENGINEERS. Vacancies exist for Assistant Mechanical Engineers in the Motive Power Section of the Transportation Department of the Rhodesia Railways. Experience of Steam and/or Diesel Electric Locomotives and a knowledge of Running Shed practice and Carriage and Wagon Maintenance is essential. Applicants who have served a recognised pupilage or apprenticeship on a Railway and have had subsequent running maintenance experience will be preferred, but experience in Drawing Office, Workshops and Process Planning will be a recommendation. Applicants should be from about 25 to 40 years of age. The salary range is £850 to £1,800 per annum. The commencing salary will depend upon qualifications and previous experience of the applicant subject to a maximum of £1,500 per annum. The minimum qualification for advancement beyond £1,450 per annum is the standard required for admission by examination as an Associate Member of the Institute of Mechanical Engineers. Further advancement to the Grade of District Mechanical Engineer on the salary scale £1,900 by £100 to £2,200 per annum is dependent upon vacancies; these appointments are made by selection. A Cost-of-Living Allowance at present 3 per cent. of basic salary subject to a maximum of £2 10s. 0d. per month, is payable. Membership of the Contributory Pension Fund and the Medical Fund is obligatory and the usual Railway privileges in respect of travelling concessions, leave, etc., will apply. Details will be given on application. Income Tax in the Federation is not unreasonable and at the present time a married man with one child earning £1,100 per annum would not be liable. Housing is provided at a moderate rental for married Engineers; the rental payable is £7 10s. 0d. per month for an Officer in receipt of a salary of £1,700 per annum, and for an Officer in receipt of a higher salary £10 per month. In the event of Railway accommodation not being available a Married Accommodation Allowance at the rate of £72 per annum is payable. Applications, together with full particulars of training, experience, education and technical qualifications, etc., should be forwarded to: The London Agent, Rhodesia Railways, 241, Salisbury House, London Wall, London, E.C.2.

THE Nigerian Railway Corporation invites applications for the following posts at the salary of £800 by £50 to £1,600 p.a. plus £300 p.a. Overseas Pay on pensionable terms, or on contract with 20 per cent. gratuity per annum of total pay: (*a*) ASSISTANT WORKS MANAGER (LOCO.). Candidates must have served an apprenticeship in a first-class Locomotive Workshop, with at least two years' subsequent experience in the organisation and administration of a Railway Locomotive Workshops. Candidates must have had experience of a Drawing Office and production methods. Carriage and Wagon building and maintenance experience is desirable. For appointments on pensionable terms, age limit 26-45 years and candidates must possess A.M.I.Mech.E. or have passed Parts I and II (or equivalent). For contract terms, age limit 55 years and professional qualifications may be waived if compensated by wide experience. (*b*) ASSISTANT WORKS MANAGER (CARRIAGE AND WAGON). Candidates must have served an apprenticeship on a British Railway or in a Carriage and Wagon Workshop of a rolling stock manufacturer with subsequent experience on a Railway. Candidates should have Drawing Office experience and must have passed Parts I and II of the Institution of Mechanical Engineers (or equivalent). Preference will be given to candidates with experience of workshop organisation including Progress and Production methods. (*c*) ASSISTANT SUPERINTENDENT OF TRAINING (MECHANICAL). Candidates must have at least five years' industrial and/or teaching experience, preferably with a Railway. They must be in possession of Parts I and II of the Institute of Mechanical or Electrical Engineers (or equivalent). Tours: 15 months followed by 15 weeks' leave in U.K. on full pay. Allowances: In addition, there are attractive allowances. Send postcard mentioning the post and this paper for further particulars and application form to: The London Representative, Nigerian Railway Corporation, 11, Manchester Square, London, W.1.

Railway Stock Market

Once again foreign railway stocks have attracted very little attention but quotations were generally quite well maintained. Antofagasta ordinary and preference were 33¾ and 45 respectively, while United of Havana second income stock was 8¾. San Paulo Railway 3s. units eased to 2s. 6d. and in other directions, Mexican Central "A" bearer debentures were 69. Business up to 6 was shown in Brazil Railway bonds and at 40 in Chilean Northern 5 per cent debentures, while Costa Rica ordinary stock was 21½ and the 6½ per cent second debentures 90. Taltal Railway shares have been dealt in around 12s. 6d. International of Central America common shares were $26½ and the preferred stock $173.

There was a somewhat better trend in Canadian Pacifics, although like most dollar stocks, they must be expected to move very closely with the trend of Wall Street. Canadian Pacifics at $66⅞ were higher than a week ago with the 4 per cent preference stock and 4 per cent debentures at £56¼ and £61⅛ respectively. White Pass shares have changed hands around $19¾.

Shares of locomotive builders and engineers have shown a number of small gains and were firm generally with Beyer Peacock 5s. shares at 9s. 6d. at which there is a yield of 8¼ per cent on the basis of last year's 16 per cent dividend. The latter was earned twice over, and prospects of the dividend being maintained for the current year on the latter capital are regarded as good in the City. There are also hopes that many more engineering companies will decide to issue half-yearly profit figures and progress reports as has been requested by the Stock Exchange Council. The progress statement by Associated Electrical Industries has shown how the trend in earnings can change in six months. Shares of the latter company have risen to 62s. 6d., which compares with 59s. 9d. a week ago. General Electric at 46s. 6d. and English Electric at 61s. 3d. were also firmer and Crompton Parkinson 5s. shares have changed hands around 16s. 1½d. B.I. Cables were 49s. 3d. at which there is a yield of fully 5 per cent on last year's 12½ per cent dividend. Birmingham Small Arms remained steady at 31s. 9d. in anticipation of official news shortly of the progress being made with the plans for internal reorganisation from which future earnings should benefit. Pressed Steel 5s. shares have been dealt in around 16s. 10½d. and the 10s. shares of the Dowty Group were 34s. 3d. T. W. Ward were 77s. 6d., while in other directions, George Cohen 5s. shares at 13s. held firm on the past year's excellent results and the higher dividend of 12 per cent.

Charles Roberts 5s. shares have been steady at 10s. 7½d. at which there is a yield of nearly 7 per cent. North British Locomotive receded to 17s., Hurst Nelson were steady at 33s. and, elsewhere, Birmingham Wagon were 19s. 1½d. Gloucester Wagon 10s. shares were 15s. and Wagon Repairs 5s. shares 13s. Guest Keen have strengthened to 53s. 9d. British Timken shares held firm at 67s. 9d. and Westinghouse Brake at 38s. 3d., while in other directions. Ruston & Hornsby kept steady at 30s.

Forthcoming Meetings

Open currently and until further notice.—**British Transport Commission: Historical Exhibition "Transport Treasures" in Shareholders' Meeting Room, Euston Station, from 10 a.m. to 6 p.m. on weekdays, and 2 to 6 p.m. on Sundays. Admission 6d.**

September 6 (*Fri.*).—The Railway Club, at 320, High Holborn, London, W.C.1, at 7 p.m. Paper by Mr. T. B. Sands on "Savernake and district—a railway crossroads in Wiltshire."

September 7 (*Sat.*).—Electric Railway Society. "Meet Mr. J. W. Vigrass, of Cleveland, U.S.A." Fred Tallant Hall, 153, Drummond Street, N.W.1, at 7.15 p.m.

September 10 (*Tue.*).—Railway Correspondence & Travel Society, East Midlands Branch, at the N.C.S. Guild Room, Toll Street, Nottingham, at 7.30 p.m. "Railway colour photography" shown by Messrs. E. H. Miller, L. Taylor and R. W. Sheppard.

September 13 (*Fri.*). to September 16 (*Mon.*).—Institute of Transport, Weekend at Ashridge, Berkhamsted, Herts. Course on "Problems of Management in Transport."

September 14 (*Sat.*).—Permanent Way Institution, London Section. Joint visit to Dublin with Irish Section members.

September 19 (*Thu.*).—Model Railway Club, at Caxton Hall, Westminster, S.W.1, at 7.45 p.m. Film show arranged by Mr. N. S. Eagles with the co-operation of the British Transport Commission.

September 25 (*Wed.*).—Institution of Locomotive Engineers, at the Institution of Mechanical Engineers, 1, Birdcage Walk, London, S.W.1, at 5.30 p.m. Delivery of Presidential Address by Mr. E. S. Cox.

September 25 (*Wed.*).—East Indian Railway Officers' annual dinner, at the Connaught Rooms, Great Queen Street, W.C.2, at 6.30 for 7 p.m.

September 26 (*Thu.*).—East Indian Railway re-union tea party for officers and their families, at the St. Ermins Hotel, Caxton Street, S.W.1, from 3.30 to 6 p.m.